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FOURTEEN MEN

*THE STORY OF THE
ANTARCTIC EXPEDITION
TO HEARD ISLAND*

BY
ARTHUR SCHOLES

Illustrated

NEW YORK
E. P. DUTTON & CO., INC.

1952

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193
S36

TO
MY MOTHER

5274281

HEARD ISLAND PARTY

- A. V. Gotley, senior meteorologist (Aub)
- A. T. Carroll, observer ("Shorty")
- K. W. York, radio-sonde operator (Keith)
- A. R. Gilchrist, medical officer ("Doc")
- J. Abbottsmith, engineer (Johnny)
- A. J. Lambeth, geologist (Jim)
- A. N. Jones, cook (Norm)
- R. Dovers, surveyor (Bob)
- G. S. Compton, assistant surveyor-geologist ("Swampy")
- F. J. Jacka, physicist (Fred)
- J. E. Jelbart, physicist (Jo)
- L. E. Macey, senior radio operator ("Lem")
- A. Campbell-Drury, radio operator and photographer (Alan)
- W. A. Scholes, radio operator (Art).

I wish to thank my thirteen comrades of the Australian National Antarctic Research Expedition for their help in the compilation of this account of our little adventure.

Without the loan of their personal diaries, or their patience during many hours in which I strove to understand the purpose of their scientific investigations, this book could not have been written.

I am also indebted to the Commonwealth Department of Information for supplying the photographs, the majority of which were taken by my colleague, Alan Campbell-Drury.

W. A. SCHOLES

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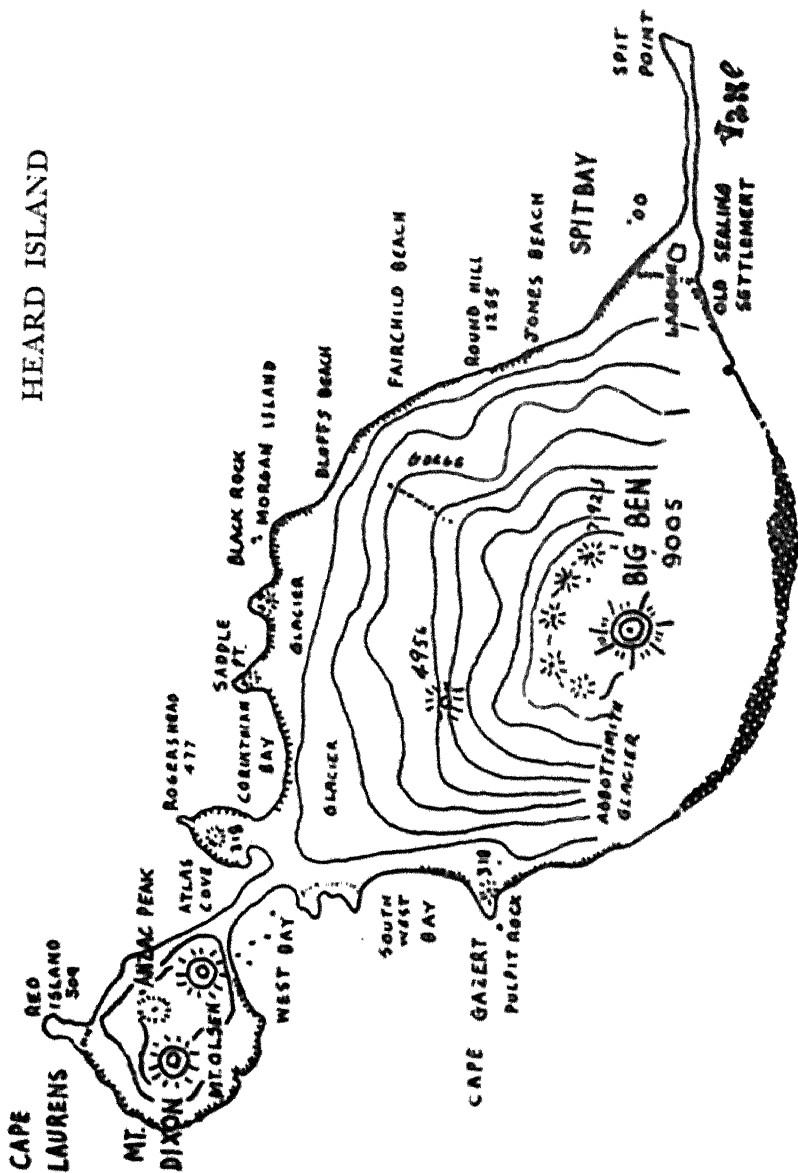
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FOURTEEN MEN

**CAPE
LAURE**



CHAPTER ONE

THE EXPEDITION

IT WAS a speeding motor cycle that made me join the expedition. Otherwise I would have gone to South America for a six months' roam around. I had been promising myself the trip for years. Tickets were booked. My departure was less than a month off. When I picked myself up off the road, my left shoulder was pounding. Buenos Aires and Rio de Janeiro disappeared into the distant future. The accident kept me under the doctor for several months.

During convalescence I called into the newspaper office where I had been working. I was still on sick pay. It was during this visit that I bumped into an old colleague. The usual after-work rendezvous at the corner pub followed.

The papers that morning had carried a photograph stating that Group-Captain S. A. Campbell had been appointed chief executive officer and leader of the Australian National Antarctic Research Expedition.

It was only a brief announcement. I paid it scant attention. But in the course of our conversation at the pub my friend surprised me by saying that he had written to Sir Douglas Mawson, the explorer, about joining the expedition.

At first I was so amazed by his news that I suspected a leg-pull. We had both been at sea as marine radio operators and had known each other for years. However, not for one second, had I ever thought my friend hankered for a life of exploration. Possibly the company of kindred happy spirits may have had some influence upon me. It may have been the disappointment of postponing my trip to South America, but when the barmaid rang the beer off half an hour later, I, too, had decided to apply for the expedition.

When I reported for an interview two months later at the University Club, Sydney, my arm was still in plaster. A man of medium build, with sandy hair, sharp features and a quiet manner greeted me. Campbell had been a pilot of Sir Douglas Mawson's Moth plane in the 1929 expedition. The *Discovery* had called at Heard Island for a few days en route to the southern continent. Later the ship had cruised between Longitude 73 E and Longitude 47 E, claiming all land and off-lying islands as British territory. Campbell had returned to the Antarctic the following year.

He had led an adventurous life. He had been engaged in aerial survey work along the Barrier Reef, and had served aboard H.M.A.S. *Albatross*, the first Australian aircraft carrier. As a civilian he had flown on aerial survey jobs in Western Australia and Victoria. At one stage he had worked his way to England as an able seaman on a windjammer. Inviting me to sit down, Group-Captain Campbell spoke about the expedition.

"There's a party of thirteen or fourteen men leaving for an island in the Antarctic in November," he said, pulling on his pipe. "Another party will leave some time in January, 1948. Each party will be away for at least a year. The only contact with the outside world will be by radio with the Australian mainland. The parties are going to carry out scientific work and establish permanent weather stations. We hope the weather stations will be manned for five years. Does that interest you?"

"Yes, it does," I answered. "Where are the parties going?"

"I'm afraid I can't tell you where the first party will be going. The second one is going to Macquarie Island, 800 miles south of Tasmania."

Campbell said that Lincoln Ellsworth's exploration ship, *Wyatt Earp*, after wartime service with the Royal Australian Navy, would be used in the expedition. Manned by a naval crew, the ship would conduct a survey of the continental

coast of the Australian sector of the Antarctic regions. The ship would leave early in December. The purpose of the *Wyatt Earp's* cruise would be to find a permanent site for a weather station on the Antarctic continent itself.

"If you want to go away with the expedition, you'll have to go with one of the island parties," Campbell explained.

"That'll do me."

If it was possible I requested to be included in the first party, with my office friend. The first party seemed the most interesting. No one yet knew where they were going. Macquarie Island, the destination of the second party, has been well surveyed by members of Sir Douglas Mawson's expedition before World War I. But who knew where the first party might get to?

When we went for our medical examinations at the Royal Australian Air Force station at Bradfield Park, my friend, who looked in good shape, was failed on account of high blood pressure.

I did not give much for my own chances after that. However, I was deferred, pending the recovery of my left wrist. Otherwise, I was sound in wind and limb.

As the weeks flew by, I returned to work on a part-time basis. Three days a week in the office and three days at the hospital for treatment. Gradually I settled down to the old job once more. In the absence of any news from the expedition people I concluded that a more suitable applicant had been found. I forgot about Antarctica.

One Saturday afternoon in the middle of September, 1947, I was back at work in the newspaper office, handling a host of miscellaneous sporting results for the Sunday editions. The results came by telegram from all parts of the State—football, dog-racing, athletics, golf, boxing, the telegrams began piling up on my desk. I started to wade through the heap. In the middle of the sporting wires, my eyes lit on

a message on which my name had been scrawled in pencil. I tore open the envelope. The first words were enough.

"Urgent you report Melbourne earliest possible. . . ."

The next few days were a mad rush while I straightened out personal affairs. My employers were good enough to release me without the usual formalities. Before finishing up at the office I rang up Expedition Headquarters and spoke to Campbell.

"We want you to come down as soon as possible," he said.

"I'll get the plane in a couple of days, if that's O.K.?"

"You asked to be included in the first one to leave."

"We've got you down for the Heard Island party. They're quite a good crowd."

"What's the name of the place?"

"Heard Island. It's about 2400 miles SW of Fremantle. We hope you'll get away in the middle of November."

There was a host of questions on the tip of my tongue which I did not feel like asking for fear of revealing my ignorance. I replaced the receiver.

Heard Island? Heard Island? Leaving in about eight weeks' time. That's good, I thought. The sooner we get cracking the better. But what about this island? It was a new one to me.

I wandered into the office library and took down the world atlas from the shelf. The place wasn't even mentioned! There was no reference to the island in the index either. Next I tried the encyclopaedia. I again drew blank! The island wasn't even shown in the map of Antarctica. The scantiness of information about my destination only added to its appeal.

There was considerable activity afoot when I entered the two-room office in Victoria Barracks with a plain white card on the door reading "Room 51. Antarctic Planning Committee."

Campbell rose from his desk to greet me. He picked up a sheaf of photographs from a wire basket.

"Have a look at these," he said, passing them over. "They were taken by the joint British, Australian and New Zealand Expedition in 1929. They'll give you an idea of what to expect down there."

I looked at the photographs with interest. They were a straight-from-the-shoulder introduction to my future abode. Pictures of barren rocky beaches, black and white mountains, glaciers, desolate coves, seals and penguins and the boiling surf.

Then I listened while Campbell unfolded the plans of the expedition. "Our operations in 1947-8 will be the first move in a long range plan for the development of the Australian section of the continent. We hoped to land a party on the continent itself, but after the planning committee investigated the undertaking, it was obvious that the scheme was too ambitious. We lacked the proper equipment, clothing and experienced manpower. There was no time to secure assistance or materials from overseas."

Campbell told me that the chief difficulty facing the establishment of the continental weather station was the finding of a suitable site. Commonwealth Bay was notorious for its severe and adverse weather. Little was known of the rest of the coastline.

In view of these difficulties the establishment of the station had been postponed. Instead, it had been decided to land scientific parties at Heard and Macquarie Islands. The new plan was a three-pronged drive into the Antarctic regions. The first party would leave in November aboard the R.A.N.'s L.S.T. 3501, which had been adapted for Antarctic conditions at a Sydney dockyard. The *Wyatt Earp* would leave a month later. She had been refitted at Adelaide. Both ships would carry aircraft. After landing our party at Heard Island, the L.S.T. would sail to the French island of Kerguelen, about 250 miles NW, here a reserve fuel dump would

be left ashore. The L.S.T. would return to Melbourne and embark the Macquarie Island party. Meanwhile the *Wyatt Earp*, after sailing along the coast of Adelie Land, would cruise westward between 90 and 60 degrees E, arriving at Heard Island in March or April, 1948.

"I'll stay at Heard Island and see that you're settled in for the winter," said Campbell. "Then I'll return to Melbourne by the *Wyatt Earp* to supervise the programme for the following year."

If necessary the *Wyatt Earp* would refuel from the emergency dump at Kerguelen. After landing the Macquarie Island party, it was hoped the L.S.T. would be able to proceed to the edge of the pack ice between 125 and 151 degrees E, nosing her way through to the Cape Freshfield-Penguin Point area. Thus a large portion of the continental coastline of the Australian sector would be surveyed.

Apart from building a weather station, the job of the Heard Island party would entail the study of cosmic rays, auroral and magnetic observations, tidal records, glaciological and geological surveys. We would also map the island.

The map of Heard Island which Campbell gave me showed that only a small portion of the island had been charted. About seven-tenths of the coastline was shown by a pecked line marking the approximate position. There were many glaciers and reefs. The one part of the map on which any reliance could be placed was the northern end of the island, well-known to the sealers.

Heard Island, destination of Red Task of the Australian National Antarctic Research Expedition, was an island with a colourful and mysterious history. At the beginning of the last century large fleets of American and British sealing ships were operating from the islands bordering the Antarctic Circle. It is not known for certain when the island was first sighted. The British sealer and explorer, Captain Peter

Kemp, in the ship *Magnet* in 1833, made an extended voyage through the Antarctic waters. There are good grounds for the belief that Kemp sighted the island. However, it was twenty years later that the island was seen by the man after whom it was named, Captain Heard, in the American ship *Oriental*.

The sealers had been responsible for the pioneer work of discovery in the Antarctic Ocean. An English sealer, Captain Powell, of the sloop *Dove*, had discovered the South Orkney Islands in 1821. As the sealers worked out island after island in their harvest of the rich fur seal, they extended their search to all islands fringing the Antarctic continent.

Another American sealer, Captain Darwin Rogers, of the *Corinthian*, is credited with being the first man to set foot ashore on Heard Island in 1856. The following year a sealers' camp was established ashore by another American, Captain Henry Rogers, of the *Zoe*. Twenty-five men were landed on the eastern end of the island and some of the party spent the winter there.

How many sealers visited the island? How many spent the rigorous winter ashore? None can now say. As the seals became scarce, there was more reason for reticence on the part of the hunters. But the sealers certainly left their mark on the island. Many names on the expedition map were the original ones given by the sealers. When the research ship, H.M.S. *Challenger*, first steam ship to cross the Antarctic Circle, visited the island in 1874, those aboard were told that forty sealers were operating ashore. How reliable this information was, it would be difficult to say. When the shore party landed from the *Challenger*, they were met by armed sealers with rifles. It is natural to assume that the sealers might exaggerate the number of men ashore when unexpectedly visited by strangers.

The sealers were out to safeguard their preserve. One sealer told the men off the *Challenger* that he had been vis-

iting the island every year since its discovery! Another said he had been ashore there for three years. How much truth was there in these stories?

The *Challenger* made a rough survey of the island. The party was only there for one day. That short visit to Heard Island is the only one on record until the arrival of a German expedition under Professor Erich von Drygalski in 1902. This expedition spent some time ashore. They named a few places, including the great mountain in the centre of the island, which they called Kaiser Wilhelm Peak. They proceeded southward to the continent.

British interest in the island did not begin seriously until 1910, when a South African whale factory ship, *Mangaro*, landed a party. In the same year the British ship *Wakefield* sailed past the island and reported violent volcanic explosions from the main mountain. In 1926 a South African company was granted exclusive rights to the sealing and mineral wealth of Heard and nearby McDonald Islands for the annual payment of £100. The venture was not successful. The company terminated the lease in 1934.

The French geologist, E. Aubert de la Rue, accompanied by his adventurous wife, spent eight days on the island in 1929. He attempted to climb up the main mountain with his wife, but treacherous crevasses baulked their path. Later in 1929 Sir Douglas Mawson visited the island in the *Discovery*.

This was all we knew of the island which was to be our home for at least a year.

CHAPTER TWO

"TRAINEE PENGUINS"

IN THE FOLLOWING days I was given my final medical clearance by an Air Force doctor at Laverton. Then, according to my instructions, I proceeded to make arrangements for my visit to Ballarat.

I was to go by the "road-train," which proved to be a long truck converted into a bus. While waiting to climb aboard the vehicle via the canvas opening at the rear, a small cheery individual approached and introduced himself.

"I'm Gersh Major, with the Macquarie Island party," he began, "We heard you were coming up to Ballarat to join the 'Penguins.'"

"Penguins?" I queried.

"Yes, everyone in the Air Force is a trainee something or other. At Ballarat they call us the 'Trainee Penguins.'"

And so the first evening at Ballarat I had a chance to get to know my fellow penguins, of whom the majority were between twenty-five and thirty years of age. "Major was taking radio-physical apparatus to Macquarie Island to measure radio frequency transmissions; "*Lem*" *Macey*, the senior of the Heard Island radio staff, standing 6 ft. 2 in., arrived in the mess before midnight. He had been in the R.A.F. for six years and eight months during the war. Our discussions ranged from the atomic bomb to Germany; from the expedition to our civilian jobs. Dawn was streaking the eastern sky when our first party finished. Major found me a spare bunk and we bade each other goodnight, in merry mood.

Another member of our Heard Island party arrived next day. He was "*Swampy*" *Compton*, from Kalgoorlie, W.A., with a fund of stories of gold mining experiences and of life in the West. When anyone was introduced to "*Swampy*,"

after a polite interval there came the inevitable inquiry regarding the origin of his unusual nickname. Cheerfully and without hesitation, "Swampy" would reply, "Because I'm all wet!" Actually he had earned the name during his air crew training days. The nickname belied his ability, for Compton was a three-man expedition by himself. Apart from being a relieving radio operator, he was to be assistant surveyor and assistant geologist with the field men.

It was springtime when we were at Ballarat. Those of us from Sydney felt the cold weather, and this caused the Air Force men no end of amusement. At night we huddled in a circle round the fire—and they sallied forth with jibes at our expense.

"Heavens, if you fellows feel the cold here, how'll you be down with the Eskimos?" the sergeants would say.

It was humorously suggested that we should begin to harden ourselves by running round the parade ground before breakfast clad in singlets and underpants.

"I'll be in it," I said—"just as soon as I see some of you sergeants setting the example."

Fortunately, my challenge was never accepted.

In those five weeks at Ballarat we gave birth to the unofficial song of the expedition—and each week a new verse or so was added on many an entertaining theme. Suffice it here to quote the chorus, which Gersh Major was largely responsible for introducing to the expedition:

"In the land of ice and snow,
When it's 55 below,
And the Polar bear goes stalkin' o'er the plain,
'Neath the shadow of the Pole,
I will clutch her to my soul;
We'll be happy
When the ice-worms nest again."

Back in Melbourne, Expedition Headquarters was working at full pressure to make the sailing date in the middle of No-

vember. Food supplies to last the island party fifteen months had been procured from the R.A.N. victualling department. Landing pontoons were obtained from the Army. A thousand and one other items were obtained from the R.A.A.F. Expeditions are self-contained affairs. Everything must be included. There is no sending back for more of this or that after the ship has sailed. Tons of equipment, from "woolly-bull" zipper flying suits to prefab. huts, mess tables and beds, tents and blankets, clothes pegs and boot laces, crockery, and even kitchen sinks had been accumulating at the Tottenham Air Force Dépôt in Melbourne's western suburbs.

Expedition personnel was called on to finish packing and crating the gear, which was divided into three sections: Red Task—Heard Island party; Blue Task—Macquarie Island party; White Task—the *Wyatt Earp*.

At Tottenham we were fitted out with clothing, most of which was service wear. I finished up with three kitbags of sweaters, socks, gloves, windproofs, footwear, headgear and the "woolly-bulls." The *pièce de résistance* was the silk combination suit. It was a neck-to-ankle affair, but there were no holes where combinations have holes. We never solved this mystery.

The funny side to the work at Tottenham was the way we travelled out to the dépôt each morning. We reported at Victoria Barracks at 9 a.m. Two luxurious hire cars, complete with uniformed drivers, arrived a few minutes later. Chartered by the Department of External Affairs, these vehicles, instead of carrying their normal diplomatic passengers and V.I.P.'s, carried the expedition members, dressed in an assortment of old uniforms, overalls and sports clothes. At 5 p.m. the cars returned to Tottenham and we were driven back to the city in style.

For three weeks we worked on supplies, crating bags of cement, loading trucks, shifting hut parts, boxing and storing different items. It was heavy physical work. At the end of the first week my muscles had overcome their initial stiffness.

I was not used to such hard work, but it was nothing to what came later.

Other members of the expedition were enrolled. *Dr. Alan Gilchrist*, the Heard Island medico, travelled to Tottenham on his motor cycle. On wet days he wore the expedition clothing to test its windproof and waterproof qualities. The tests met with an abrupt end. The unfortunate doctor skidded off his machine on wet concrete in the middle of Melbourne.

The "Doc" was a cheery individual. One day I asked him what he was going to do with his motor cycle when we sailed.

"I'm going to take it with me, of course," he replied.

"Oh, be serious, man. You can't . . ."

"All right. You see if I can't."

He kept his word. The motor cycle was loaded aboard ship and stored in the tank space.

Others who swelled the strength of the Heard Island party were *Bob Dovers*, surveyor and ex-Army commando officer; *Johnny Abbottsmith*, engineer and ski expert; *Jim Lambeth*, geologist; *Norm Jones*, cook, and the three members of the meteorological staff: *Aub Gotley*, forecaster; "*Shorty*" *Garroll*, observer; and *Keith York*, radio-sonde operator.

In the stores dépôt at Tottenham we were loading trucks until two days before sailing. Members of the Macquarie Island party lent assistance.

Those whom I met were: *Charlie Scoble*, engineer; *Carl Dutoit*, cook; *Geoff Mottershead*, radio operator, and *Ron Kenny*, marine biologist, who already sported a beard. *Alan Martin*, the senior meteorologist and officer-in-charge of the party, came to see us off at the wharf. Then the time came when we were sworn in and signed statutory declarations of allegiance. Our hour of departure drew near. . . .

CHAPTER THREE

SOUTHWARD BOUND

A LIGHT south-westerly ruffled the deep blue of the sea and the yellow L.S.T. moved westward. Only a handful of relatives, friends and curious watersiders had stood on the wharf to watch the ship pull out from Fremantle harbour.

At last we were on our way. Campbell had joined the ship at Fremantle, flying over from Melbourne, where he had been attending to the last-minute details of the organisation.

It was bright and sunny on the boat deck as we lined the rails and waved goodbye. We staged a special show for Dave Eastman, the official photographer. Apparently it was only a half-hearted effort.

"Look here, you fellows; wave and cheer!" he chided. "Look as though you're happy you're going away for so long!"

He could laugh, for he was coming right back to Melbourne with the landing ship! However, we were determined not to let him put anything over us, so we raised an extra wave and an extra cheer apiece! As the wharf fell away into the distance, we were cheering like a winning football team.

The ship steamed out into Gage Roads. The shoreline receded into the distance. . . . Events had moved quickly in the fortnight since we had left Port Melbourne. I remember how excited we were, and tired too, when the last truck had left the Tottenham stores dépôt, loaded to capacity.

At Station Pier, Port Melbourne, the Navy landing ship was a midget beside the overseas liners, *Stratheden* and *Orion*, moored higher up the wharf. The expedition ship had been painted yellow from stem to stern. The colour would stand out best against a background of ice and snow.

Gone were the guns, paravanes, rockets and other imple-

ments of war. Built in Canada in 1943, the ship was partly riveted and partly welded in construction. The bridge housing had been altered to provide all-weather protection for the navigation officers and lookouts.

The expedition party was quartered in outside and inside four-and two-berth cabins. The deck accommodation and bridge structure were at the after end of the ship, as in a commercial tanker. Outer cabins met in a small lobby, entered by a steel door from the deck. These doors were locked from either side by steel handles which the sailors called "dogs." They were like the doors of a huge bank vault. They were to prove their use later in keeping water out of the cabins. The inside cabins were similar to those on a passenger liner.

Ships of this type were built for the wartime purpose of landing tanks through their bow doors. Vehicles could be driven straight down the bow ramp when the ship beached. So two-thirds of the space below the main deck was occupied by the tank space, in which the expedition equipment was loaded through the hatchways. When the bow doors were closed, the inside of the tank space resembled a gloomy wharf house, cramped with cases, drums and machinery. When the arc lights in the ceiling were illuminated, the huge space was like a boxing stadium. Though the bow doors themselves were not completely watertight, the giant ramp behind them could withstand a battering from the worst seas. An extension ramp could be run out from the end of the main ramp.

The crew was quartered between the walls of the tank space and the outer shell of the ship. Their cabins ranged in two decks down either side.

In Melbourne the Minister for the Navy, Mr. Riordan, inspected the ship before our departure. We lined up two deep in front of the ship, facing a naval guard of honour. Newsreel and press photographers had a field day while Campbell introduced each of us to the Minister. I was standing next in line to Norm Jones, our cook. When Jones was introduced in

his capacity, the Minister remarked, "Ah, the most important man in the party!" Time proved how right he was!

In a short farewell address on behalf of the Commonwealth Government, the Minister said it was the first time any country, or group of countries, had planned three separate expeditions to the Antarctic regions. A point which the Minister did not mention was that the expedition was the first one to be backed wholly by the Australian Government.

How different from the Homeric days of Antarctic exploration at the beginning of this century! Bob Dovers, our surveyor, told me how his father, a surveyor with Sir D. Mawson's first expedition, had spent two years "on the shelf" without promise of monetary reward, or with any certainty of a relief ship to take them home.

Many expeditions have been hard pressed to pay their way. On their return organisers have spent years paying off their debts. Valuable time which should have been spent on the scientific analysis of their work was devoted to public appeals for funds. Expeditions paid their way by the sale of film and news rights, advertising, and the publication of books and syndicated articles.

The Australian expedition of 1947 was quite different. Members had been drawing award salaries since their appointments were made. We were enrolled as temporary public servants of the Commonwealth Government. As such, we became entitled to certain holiday and sick leave and to workers' compensation. In the event of the death of a member, the next-of-kin would receive £800.

A yellow Walrus seaplane appeared as a speck out of the clear blue sky above Port Phillip Bay on November 17. After circling the Navy landing ship for directions, the plane landed alongside us on the water. The Walrus was hoisted aboard by a derrick and swung to rest on a cradle forward of the bridge on the main deck. Cradle and plane were guyed down to the deck plates by heavy wire stays.

From the moment the expedition men stepped aboard the ship they were referred to as "The Scientists" or "The Scientific Party." This was rather a flattering description. Only half our number could lay claim to the scientific status. Less flattering suggestions were eagerly proffered to describe the particular brand of scientists the rest of us might be!

Norm Jones, a rotund and jovial fellow, asked me if I knew any Latin. I told him I had learnt it for eight years at school, if that was any help.

"Well, what's the Latin for tin-opener?" he demanded.

"Tin-opener. . . . Oh, they never had them in those days," I replied, trying to wriggle out of the question.

"Yes, I know; but what would it have been?"

I could see "Jonesie" was determined to find the Latin word or know the reason why. After pondering for a moment I suggested that the word "Aperiento" meant something to do with the act of opening anything.

"Right. That's all I want to know," said "Jonesie." "From now on I'm a master of aperientology—a Bachelor of Scientific Tin Opening!"

Unfortunately our conversation on the deck was overheard. When it was pointed out that the word "Aperient" had another meaning, I was far away. "Jonesie" was always chuckling. He had much to laugh at during our first days at sea.

During the war Norm had had the unusual experience of reading his own obituary. He had been reported killed in an enemy air raid on Milne Bay, New Guinea. The obituary notices appeared in several Melbourne newspapers. At the time of his departure with the expedition he was still meeting people surprised to see him alive.

Lt.-Commander J. Burgess, executive officer of L.S.T. 3501, made us feel at home from the first day aboard ship. We were granted the privileges of the wardroom. In other words, we could use the bar. At sea the bar was open for half

an hour before the midday and evening meals, and from 8 p.m. to 10 p.m. Burgess introduced the expedition members to the captain, Lt.-Commander George M. Dixon, R.A.N.V.R. Thick-set, medium build, with greying hair. Dixon, though a resident of Sydney for many years, still retained his native London accent. He was the most popular man on the ship, both with his own crew and the expedition people. Dixon had seen service during the allied landing operations in the Mediterranean and at Tristan da Cunha Island in the South Atlantic. He was one of the most experienced officers in this type of operation in the R.A.N.

Throughout the voyage the captain allowed the expedition party the complete freedom of the ship. We could go anywhere, and almost do anything at any time. Any other commander would have been driven crazy by the activities of our amateur navigators. They poked around the bridge all day. They borrowed the officers' sextants and nautical tables, harassing them with question after question. It was a common sight to see a crowd round the chart table, while the captain stood politely in the background, patiently waiting for an opportunity to squeeze a way through to the table to finish his work.

Last-minute romances had been attached to our departure from Melbourne. Three of the Heard Island party announced their engagements before sailing. On the day we weighed anchor in Port Phillip Bay, one member of the party became a father. The first day at sea, Lt. Chris Goldsmith, navigating officer, received a self-explanatory telegram: "Son born 7.11. Both doing well."

Once the ship had cleared Port Phillip Heads there was work to be done below decks. We donned overalls and descended to the tank space. Cases had to be re-stacked and certain equipment located. Designations on the cases raised a few laughs. Variations in spelling marked many items, such as "Antarctic Expedition, Antarctic Experdition." "Antartic" appeared frequently.

In the ocean a slight swell was running. "Doc" Gilchrist, fearing the worst, handed round sea-sick pills.

"They guarantee results in fifty per cent. of the cases and alleviate suffering in the others," he said. A worthy testimonial perhaps, but the pills never achieved anything like those results on L.S.T. 3501. "Doc" was a bad advertisement for his own medicine, being one of the first sea-sick victims.

Surveying the full wardroom for the first evening meal, Lt.-Commander Burgess had bewailed the strain on the officers' fund. "How on earth can the wardroom hope to show a profit with such a healthy bunch of men?" he had complained. He did not have to wait long for the empty chairs to appear.

Two young physicists from Melbourne University, Fred Jacka and Jo Jelbart, had joined the party. They brought cosmic ray recording apparatus with them. Most of the delicate equipment had been made by the staff and students at the University. Two scientists came to make the round trip to Heard Island. They were to make magnetic observations. They would do the same at Macquarie Island. They were Noel Chamberlain, a thirty-year-old geo-physicist from the Commonwealth Mineral Resources Bureau, and his assistant, Jack Ivanac, a twenty-one-year-old scientist from Kalgoorlie. He was in charge of valuable equipment loaned by the Carnegie Institute of Washington, D.C. Chamberlain, fair and quiet spoken, had made magnetic observations at the Cocos Islands for the R.A.F. during the war. He found the local charts were from two and a half to five degrees in error, and had since made magnetic checks round the northern part of Australia. He hoped to make observations from both ends of Heard Island. With his own camping gear, he planned to live ashore, measuring with his instruments the components of the earth's magnetic field. In this work Chamberlain had

to "demagnetise" himself. He removed all metallic objects from his person, such as zippers, metal braces, wrist watch, cuff links, etc. He was so thorough that he tied his trousers up with string and removed the metal eyelets from his boots. Any metals near the sensitive recording instruments would give false readings.

As the landing ship ploughed its way into the Australian Bight sea-sick casualties fell victim to this notorious stretch of water.

I shared a cabin with the three men of the meteorological section. Our cabin was always full of kitbags. My companions unjustly held me responsible for this state of affairs. I possessed three kitbags to their two per man. They never considered the suit-cases, coats, hats and suits which they had brought. I had arrived on board in the Air Force blues which had become the unofficial expedition uniform. I had left my civilian clothing ashore. The congestion in the cabin was so bad at times that it was impossible to open the door. There were kitbags everywhere. Eventually we organised a system of stacking the kitbags, but it did not last long. The system worked in such a way that when I came to bed I would find nine kitbags stacked on or near my bunk. There was no alternative but to move the whole lot to the nearest vacant one. We all had the same idea. In this way the kitbags travelled round the cabin from bunk to bunk. The last to come to bed had to contend with all the kitbags before he could slip between the blankets.

The "met" boys, as we called my cabin companions, began their weather observations as soon as we were in the Bight. Observations were radioed back to the Melbourne Weather Bureau. Sea temperatures were taken by lowering a canvas bag over the side for a sample of water. Sometimes it was necessary to lean far over the side to haul in the bag. In bad weather this was considered too risky. Temperature taking was not attempted under those conditions, when

the ship was rolling in the long south-westerly swell. The "met" boys set up a thermometer screen containing a dry- and wet-bulb thermometer on the boat deck. Inside the chart-house they rigged a barograph and a mercurial marine type barometer. Throughout the voyage the conversation in my cabin dealt with barometers, isobars, temperature changes and the passing of warm and cold fronts. By the time we were approaching our destination I was awaiting the latest weather "obs" with the expectancy of a racing man listening to the radio on Saturday afternoons.

As we approached the West Australian coast we were to call at Fremantle for fresh food and to refuel. The weather became hot. The ship's company changed into tropical rig, khaki shorts and shirts. One conscientious officer asked the expedition party if they had suitable clothing to wear in conformity with the Navy's changed dress. An Antarctic expedition with sun helmets and shorts! An unofficial suggestion was made that we might parade in our chain singlets and silk combinations. The singlets were like dish cloths or string shopping bags. The expedition handbook contained half a page explaining in scientific language how these garments retained the heat when worn underneath other clothes. The majority remained unconvinced. The chain singlets were never worn while ordinary styles were available.

The occasion of the Royal wedding of Princess Elizabeth and Philip Mountbatten was celebrated in the wardroom with a special toast. In conformity with naval custom, everyone remained sitting. The chief engineer, Lt. Elvin, explained that the King of England, he thought it was King William the Fourth, was on board one of his ships when the Royal toast was proposed. The King had stood up and banged his regal head on a rafter. He at once ordered that all future toasts should be drunk sitting down. Ships in those days, of course, did not have the head room of the modern ships, but the tradition has been maintained.



Top: Wyatt Earp alongside ice.

Bottom: Southward into the rollers of the Southern Ocean.



*Top: Lambeth, Compton and Dovers - field party - set out on Cape Laurens survey.
Bottom: Digging in the food pile after winter blizzard.*

During our three days at Fremantle we rehearsed a beach landing from a L.C.V.P. (landing craft, vehicles and personnel). Two of these craft were carried on the boat deck aft of the bridge. They were lowered into the water by davits like a ship's lifeboat. It was warm and sunny during the rehearsal, like a picnic. We landed at a small beach near Fremantle harbour. A part of the exercise entailed the towing ashore of a scow by an endless rope. It was hard work pulling the scow. Even in the slight surf the scow jumped and bounced.

The work boat was taken out into Fremantle Harbour and tested. Dr. Gilchrist supervised loading of additional fresh food. For the remainder of the time in port we were free to go ashore as we wished. Local officials made a grand gesture, inviting the naval crew and the expedition party to Fremantle Town Hall for beer and sandwiches.

The L.S.T. anchored off Rottnest Island in the twilight of the evening. The Walrus plane, which Pilot Mal Smith had been test-flying, circled the ship and landed alongside. The sea was choppy. The buffeting in the swell made the aircrew sick before the plane was hoisted aboard.

After dinner in the wardroom I went up to the bridge with Macey and Campbell-Drury. The anchor was up. The nose of the landing ship pointed to the west. She would hold that course for a week, until meeting the south-westerly swell coming from the Antarctic regions.

On the deck we could see the shore lights disappearing one by one in the east. The sky was clear and brimming with stars. The full moon was round and sad, as we watched civilisation disappear.

CHAPTER FOUR

MOUNTAIN ISLAND

THE FIRST four days out of Fremantle were warm and sunny. The ship made good time, maintaining an average speed of ten knots. Sailors worked on the deck in shorts and sandals. Members of the expedition party squatted on bollards and hatch covers, grabbing a last sunbake. Six or seven albatrosses skimmed and dived over the water behind the ship. Sometimes they flew level with the deck to stare at the two-legged creatures leaning against the rails. They banked away on the air currents, to disappear far astern. They were always there when you looked again in the morning.

The days were free and easy. They were days of good fellowship and good company in the wardroom. We began to get to know each other. Slowly the island party was being built into a team. At nights there was a movie show; one night for the crew, the next night for the officers and expedition personnel. Matters of minor shipboard moment became topics for mealtime conversation.

Four of the expedition party were missing meals. Even in a slight swell the ship rolled heavily. The sea-sick said they felt every ripple of the ocean. All the party began writing Christmas cards and letters. Mail would be returned to Melbourne with the ship. Our messages might not reach their destination until after the New Year, but that was of small consequence. It was the last chance to write home. Some men had brought specially printed cards for the occasion. The cards showed penguins and icebergs and bore the words: "Greetings from A.N.A.R.E., Heard Island." Some wrote more than a hundred letters and cards. Campbell, as our

leader, had been appointed temporary postmaster of Heard Island. The arrangement had been given wide publicity. More than four thousand philatelists' letters had been addressed to him from all parts of the world. The letters had to be checked, stamped and franked with the Heard Island cancellation mark. For days wardroom tables were littered with mail. Two or three of the party would assist Campbell during quiet moments. All told, nine thousand letters were to be returned with the ship.

The "line-book" became a flourishing institution. The purpose of the book was to record tall stories related in the wardroom. Originally an R.A.F. custom, Fl-Lt. Mal Smith, the Walrus pilot, introduced the book to the wardroom. Enthusiastic pilots returning from combat were accused by fellow flyers of "shooting a line." These "lines" were entered in the book and duly witnessed. It may have been poetic justice, but the donor of the book appeared prominently in the opening pages.

"Smithy" had been quoted in a newspaper interview as saying: "I don't have time to answer all the fan letters I receive." No one knew how many fan letters "Smithy" received, but the remark did not miss the eagle eyes of his friends. It was duly entered in the "line-book." Even the highest personalities on board were trapped. The captain himself was halted in the middle of an after-dinner story and accused of boasting that he was one of the finest cooks in the world. Before many days everyone had been booked at least once. It would be unfair to say who topped the final list. Towards the end of our time on the ship the "booking" became so keen one had to guard every spoken word.

The nights in the Indian Ocean were semi-tropical—warm breezes, clear starry skies and bright moonlight. I used to steal up to the boat deck after dinner and lose myself in contemplation, gazing at the limitless, gently swelling ocean. You felt alone and completely relaxed, surrounded by miles

of calm sea. You could lie on the hard steel deck, only the throbbing of the engine and the beat of the screws to break the quiet.

As the peace of the night continued undisturbed, you would say to yourself: "There's nothing like this in the cities. This is real life." You began to feel sorry for the "slaves" chained to their office jobs year after year. They would never know the spell of warm sea nights and soothing breezes. It was in those moments the world seemed big and wonderful, generous and kind. It was impossible to think ill of anything. You felt as though you could stay there looking up at the heavens forever. . . . Your mind raced away with you and took you to distant and romantic places. . . .

"Clump! Clump! Clump!" The boots of the watch climbing the ladder to the deck broke the spell. You returned to reality with a yawn and dived below to the waiting bunk.

One night I was on the boat deck with Alan Campbell-Drury. Around us was a conglomeration of ventilators, skylights, boats, crates of fresh food and laundry flapping in the fresh breeze. We sat on the engine-room skylight, smoking, yarning and dreaming idle thoughts. I was miles away, when Alan tugged my elbow.

"Look at that darn star!" he cried. "I'll swear it's moving."

"Oh, pull your head in!" I answered. "You don't catch me that easily."

"All right; you think you're so smart. I'll bet you anything it's moving."

"It's the ship moving, not the star."

"I'll bet you £5 it's moving!"

At that remark I turned round and looked where he was pointing. Sure enough in the sky there was a light, and it was moving. At first glance the light might have been mistaken for an aeroplane, but it kept bobbing up and down. Only a few seconds were required to solve the mystery. We

walked to the stern. On the deck below a few sailors were having the time of their lives—flying a kite!

The kite was hundreds of feet in the air. The sailors had clipped an electric torch light to its tail. The kite was still flying in the morning, anchored to the stern rail by a long line. It bobbed up and down, now diving fast, only to rise again with the upward currents. The trailing albatrosses gave the strange object a wide berth.

The fine weather went with the coming of December. The Antarctic swell hit the ship on the port bow. Rolling across thousands of miles of ocean, the great waves forced the captain to head the ship straight into the sea. Course SW, direct to the island which the Yankee sealer had discovered nearly a century ago.

A cold bite crept into the air. The mercury dropped below 40 Fahrenheit. It continued to fall by a degree a day as the ship moved southwards. From now on the voyage became a grim tussle. The hundred men aboard ship began to realise the ferocity of the Southern Ocean.

So into the Roaring Forties! The ship kicked up forward and aft as she faced into the rollers. The latitudes were determined to live up to their worst reputation. The motion of the ship became maddening, like an amusement park whirligig out of control. There was no rhythm, no equilibrium.

In the wardroom we heard the rollers smashing against the bows, spewing green water over the foredeck. Then would come a fearful crash-bang noise as the rollers rattled and smashed along the flat bottom of the ship. The noise travelled with crescendo until at the stern it sounded like heavy gunfire, drowning all conversation.

In the engine room the din numbed the men's ears and strained their nerves. "Brumpp, brumpp, brumpp, BRUMPP, CRASH! Brumpp, brumpp, BRUMPP, CRASH!"

The banging was continuous from stem to stern. The ship's motion was so fierce the metal bulkheads bulged and bent as the vessel fell from the crest of one wave into the trough of the next. It was then we could hear the screws fruitlessly chewing the air, feet above the water, as if the ship were struggling for breath. . . . Then the bows plunged down once more.

In the petty officers' recreation room the banging of the waves drowned the sound-track of "Ziegfield Girl." Even the lusty voice of Tony Martin was stilled by the symphony from below.

The motion was worse when we went to bed. I had three blankets on my bunk for the first time. Few slept well that night. Norm Jones, in a cabin below decks, found the noise too loud. He tried sleeping on the wardroom settee until he was rolled off on to the deck.

The second night of the storm found no abatement of the sea. However, there were two twenty-first birthdays to celebrate. Keith York and Jo Jelbart, the two youngest in the party, had come of age. Nothing would stop the expedition from honouring such an occasion. An extempore orchestra was assembled. Campbell-Drury was at the piano, Jacka on the 'cello, and Jelbart on the clarionet. At times the revellers had to choose between their drinks and their balance. The two were not associated. Even a teetotaller would have failed to walk straight in that storm. Generally the drinks took second place. We sang a round of songs, including "Three Blind Mice," which went on and on. None knew any words, other than the chorus. Outside the crash of the rollers could be heard above the noise of song and music. The motion of the ship was wild and untamed. There was no pleasure except in the cabins or the wardroom.

A small fire broke out in the ship's canteen. All the money in the till, about £76 in notes, was destroyed. It was a pleasant change from the restricted routine of shipboard life

when the captain asked me if I would serve as note-taker at the subsequent inquiry.

The "court" was assembled on the bridge before the captain and the executive officer. It transpired that someone had left a bottle of petrol in the canteen. Fire had broken out while the money was being counted. A carelessly thrown away cigarette? Nothing sensational was revealed in the examination, but it took the court of inquiry and the note-taker all their time to maintain an even keel on the pitching bridge.

For the third day in succession there was no sun. The sky was a mass of dull grey clouds. Green rollers lay ahead of the bows as far as the eye could see. I went up to the bridge to chat with Alf Hayter, a commissioned warrant officer, who was on the watch. Alf was the ship's jack of all trades. He had been at sea on British merchant ships since he was a "shaver." He had been settled in Australia for many years.

"How's it going Alf?" I inquired.

"The gale's already set us back two days," he replied.

Alf led the way into the chart-room and made a quick check with the dividers. The ship had covered a hundred miles in twenty-four hours—less than half the normal day's run. Worse was to come. The wind rose in ferocity. Gusts reached 60 m.p.h. The ship could barely make headway against the big seas and the wind. By December 6 the speed of the landing ship had been reduced to two knots. The nose was plunging into terrific seas. In the wardroom the skipper was heard to remark: "It's one of the worst seas I have ever known." Even this opinion was to be revised before the operations at Heard Island had been completed.

On the bridge the clinometer registered a roll of thirty-two degrees. In the height of the tempest there came a dramatic call over the loud-speaker system:

"All hands and expedition personnel muster on the foredeck! All hands on the foredeck! Deck cargo is loose forward!"

Without waiting to change into windproofs, the men answered the call. From their cabins, from the wardroom, from wherever they were they heard the message over the speakers. As we moved slowly forward on the shifting, slippery deck, we gripped stanchions, hawsers, plate-bolts, anything solid, to maintain balance. Spilt oil, blown on the metal deck, made the surface treacherous for the feet. Big seas were sweeping both bows. In no time we were drenched to the skin by freezing spray. Oil drums were loose, free from the holding lines. Some drums contained aviation spirit for the Walrus. Unless the drums could be re-aligned, there was peril to the whole ship. Rolling drums could smash the rest of the deck cargo, reach the plane, and spill their contents. Aviation spirit blowing over the decks!

Something of the grim possibilities of the dangerous situation must have been conveyed to the men struggling on the foredeck. They worked like demons.

Campbell, in tennis shoes and overalls, worked beside the expedition men and sailors. As the bows plunged into the dark cavernous trough of the waves we clutched for dear life at the nearest solid object. A loose grip on the sliding deck, and a man would have been overboard before his companions could lift a finger to help him. Rolling cold steel drums back into alignment was hard work in ordinary weather. With hail and clouds of freezing spray beating our faces, the job was backbreaking. Before the bows smashed into a big comber there would be a brief warning.

"Here it comes, boys! Hang on! Hang on!" someone would yell. We crouched low behind the pontoons and drums, grabbing anything we could grip with our cold fingers. Once I paused in the middle of heaving on a drum, my stomach muscles exhausted with strain. I glanced at the rising and plunging bows. It was an awe-inspiring sight! Magnificent, yet dreadful. Great mountains of turbulent water lay ahead. Down in the trough the water surrounded the ship like the grey walls of a prison. The water walls were higher than the

funnel. Forty feet of solid water. Tons and tons of water waiting to deluge the deck and sweep away everything in its path. We worked with the energy born of despair. It was incredible the landing ship should ride such waves. Some were so high, it appeared inevitable we would be flattened and crushed by the weight of water. Each time the ship rode again to meet the challenge, fighting every inch of the way. The way the ship rode those seas stirred the men to renewed efforts. It was as though they felt there was something underneath the deck, fighting for them. Their ship had a great heart, a fighting heart. Everyone who could lend a hand was on the foredeck exposed to the full force of the storm.

For anxious seconds the ship would reel and stagger, the deck sliding into the sea. It was in these moments my stomach went to pieces and I dared not look at the sea round us. I worked on blindly with the others. Like a boxer rising at the count of nine, the ship would shake herself at the last moment, face up and right herself for the next attack. So it went on. Numb and awkward hands. Frozen and hail-battered faces. Soaked bodies and exhausted muscles. The ordeal lasted more than an hour, until the last drum and the pontoons were secured.

At night the chief engineer reported the engines were burning enough oil for ten knots steaming, though he doubted whether the ship was making one knot. But the end was not yet. . . .

The storm continued throughout the night of December 6. By morning the tempest was still raging, for the fourth day. In the afternoon I clutched my way up to the bridge. Alf Hayter was again on the watch. How many hours the officers and men had been on duty I did not know. They all looked tired and worn from lack of sleep. The strain was beginning to tell. I tried to be cheerful.

"Well, we're still here, Alf!" I began.

"Yes, but where's here?" he asked in a hearty tone.

According to his calculations we had travelled a maximum

of fifty miles in the last twenty-four hours. Whether our progress had been sideways, backwards or a combination of both was a debatable point. The sun was still blacked out behind the grey pall of clouds. The sky was poised above the ship like a black curtain waiting to fall and smother everything in its folds.

The gusts were still topping 60 m.p.h. The seamen's quarters had been flooded. The stewards had wakened to find a foot of water swirling round their bunks. Now they slept in the wardroom.

The temperature dropped below freezing. Expedition men appeared on deck in their "woolly-bulls." Some tried to make up for lost sleep by staying in bed. Indeed bed was the best place if there was no work to be done. It was impossible to move on deck without risk of a drenching. Moving from the outside cabins to the wardroom flat was a hazardous business. Waves continually swept the deck. You had to wait at the bulkhead door for a respite. Then you made a mad dash along the deck, grabbing at the "dogs" on the flat door.

One morning I fumbled the "dogs" on the bulkhead. A wave breaking over the deck engulfed me. Slipping on the oily deck, I lost my grip and was carried along by the wave to the scuppers. Fortunately I managed to grab a bollard. As the ship heeled over to port I scrambled on my feet and was swung back against the bulkhead by the motion of the ship. One "dog" was sufficient to close the steel door. For some reason all eight "dogs" had been closed from inside the wardroom flat.

When I entered the flat I was dripping from head to foot. Borrowing a towel and dry clothes from an inside cabin, I took a hot shower. I managed to avoid a similar mishap on the return trip to my cabin. The three "met" fellows had seen me leave the cabin fifteen minutes earlier in dry clothes. When I returned in borrowed plumes, the explanation was obvious. Roars of laughter greeted my appearance.

However, later in the day two other men on the port side received similar drenchings.

After four days the sea began to abate. Many on board were nerve wracked and anxious, but we had gained tremendous confidence in the ship. A ship built under the stress of war, to be true, it was one which would survive the worst the Antarctic might throw against us. Before the next night had turned to day we were to need all our confidence. With the moderation of the storm, peril came from another quarter.

A radar watch was set for icebergs. Each expedition member spent an hour at the screen in the bridge-house. Though the landing ship was within the geographic limit of the drifting bergs, it was unlikely many would be encountered so early in the season. The skipper decided to take no risks.

At 9.45 p.m. I was doing my trick on the bridge. Sub-Lt. Johnny Levett was on the watch. The captain had gone below for a cat-nap, his first sleep in more than two days. It was pitch dark and lonely in the bridge-house. We sang a few songs, but soon tired of the sound of our own voices. Peering through the clear-vision panel, Levett said: "The worst of the storm must be over now." I agreed. Our optimistic conversation was interrupted by a whistle from the engine-room speaking tube. Levett picked up the voice pipe.

"We're shutting off both engines. There's no oil coming to the boilers," said the voice from below.

Levett wasted no time, and called the captain on another tube. The comforting hum of the engines began to die. Lights grew dim, flickered, and the ship was thrown into complete darkness.

Again the speaking tube whistled. This time it was the helmsman in the wheelhouse below. "Ship's not answering, sir. We're losing way," he reported to the bridge.

The steering motor ceased to function. The gyro compass cut out. The ship was helpless, as though all the fight had been knocked out of her. Dixon was on the bridge in a few

moments. He looked grey with worry and the strain of sleepless nights on watch. Now, when he had tried to snatch forty winks, a fresh emergency had arisen.

"Thank God this didn't happen earlier," I heard him mutter.

A guiding destiny must have been watching over the expedition ship. If the engines had cut out during the height of the storm there was little doubt what the outcome would have been. No flat-bottomed ship can lie beam on to forty feet waves and 60 m.p.h. wind.

Already the nose of the ship, which had been pointing into the swell, was beginning to swing round. The engineers, who had also been working extra watches, now put forth their finest effort. With the lights out, the ship became eerie. The noise of the waves on the port side was the only sound to be heard. They had lost much of their force, but an occasional one broke over the main deck. While the ship wallowed at the mercy of the elements, life in the wardroom proceeded with bland unconcern. Candles were lit. At one table a group played cards by torch-light. There was nothing for most of us to do except to sit and wait.

After forty minutes of darkness the ship had swung beam on to the sea and was rolling heavily. Then the emergency lighting system was brought into service. This made all the difference. Nothing seemed so serious when you could see your companions and know that life was going on as usual.

Twenty minutes later we heard the engineers had reported oil was being fed to the boilers once more. They had managed to keep up a head of steam and had switched over to another tank. A few minutes passed and we heard the whine of starting engines from below. Cheers broke out when the familiar rhythmic throbbing shook the ship and the screws began to whirr. It was with great relief that we went to bed that night.

In the morning the sea was calm. Past perils were forgot-

ten. The ship was nearing her destination. A large gang of men assembled on the foredeck to repair the ravage of the storm. Pontoons were mended and prepared for launching over the side.

"Lem" Macey came into my cabin at 4 a.m. on December 11. He gripped my shoulder and shook me in the bunk.

"Hey, wake up! Wake up! We're almost there," he said.

"Oh? What's it look like?" I asked, feeling half asleep and quite content to stay in bed.

"Come on deck and have a look for yourself!"

He gave the blankets a tug, so they fell to the floor. I hopped out of bed and, hastily dressing, followed him to the boat deck.

It had been broad daylight for some time. The sun shone in a blue sky. The air was fresh and cold. A small crowd stood round the railings. I pushed my way forward, and there. . . .

The scene ahead was unforgettable. In my mind I had been building up a picture of a grim, desolate country, obscured by fogs and mist. The first glimpse of the island was possibly the best view we had. In the dead calm blue of the sea, there lay the island, alone and majestic, like a great white iceberg. We were about ten miles off. In the empty space of the horizon there appeared this massive white shape. Clouds traced lazy trails round its sides. High above the clouds was the white dome of Big Ben Peak, like a white arc or moon in the sky. The centre of the mountain was hidden by lower clouds. Surely if Captain Heard had seen the island as we did in December, 1947, he would not have just sailed past?

We stood at the rail gazing at the mountain top. Even as we watched, the clouds began to gather. Like a beautiful woman of the East, shyly drawing aside her veil to peep at the adventurers who had come to pay her court, the mountain

had welcomed us. Now as the clouds banked up round the island, they drifted upwards, finally obscuring the land and the lofty dome.

The sun disappeared behind the clouds. The sky became the familiar dull and grey. It was cold on deck. We went below to the wardroom for bacon and eggs and mugs of hot tea.

CHAPTER FIVE

NATURE'S STRONGHOLD

OPERATION orders issued by Lt.-Commander George M. Dixon, skipper of L.S.T. 3501, left the scientific party in no doubt regarding the difficulties ahead. "Landing operations of the kind we are about to undertake at Heard Island constitute a race against the elements. They require the unceasing efforts and ingenuity of every person who takes part, either directly or indirectly. Careful planning between ship and shore parties is essential. If settlement is to be established at Spit Bay, the problem will be to beat the weather. While it is calm, landing operations will have to be carried out unceasingly so long as there is sufficient light, by either sun or moon. To make the landing a success, the utmost co-operation and effort of every member, both of the ship's company and the scientific party, is necessary. It may mean long hours of hard work and discomfort, but to have carried out the landing at Spit Bay will be an achievement worth while."

Spit Bay had been selected as a possible site for the weather and radio station. It was considered that there would be less interference with radio communication if our camp was built on the eastern side of Big Ben Mountain.

Dixon's orders outlined the general plan of the landing operations. Spit Bay, the target beach, was on the southern extremity of the island. In the notes on Heard Island which we had been given at Expedition Headquarters, the beach was described as a "fair landing" beach. Just how "fair" it was only the future would show.

As the ship approached the island, its bleak and dismal coastline became apparent. It accorded with my precon-

ceived ideas and looked as though it would have knocked the heart out of any adventurer. To my surprise, there was an excited eager crowd on the boat deck, talking and pointing at the coastline.

"Look at that long slope. What a perfect ski run!" said one.

"What a place for climbing!"

"I hope we get a chance to see right round the island."

Such was the spirit of my companions, the majority of whom had had no snow experience. Johnny Abbottsmith, as a ranger in the Kosciusko Mountains, was used to handling a team of dogs. He was one of the State's best skiers. Fred Jacka, Jo Jelbart and Dr. Gilchrist had learned to ski in Victoria. One or two others had been on skis before; two or three had not seen snow until they reached the island. The landing ship warily approached the coast. Our map showed dangerous shoal waters surrounding Spit Bay. Both engines were running at dead slow. Lookouts were on the bridge.

Clouds shrouded the island's mountain tops. The grey sky added a dark and treacherous look to the sea. From several miles distant, the long arm of Spit Point was discernible as a long low bank curving out to sea in a semi-circle for a couple of miles at the southern extremity of the island.

Nearly the whole of the western side of Spit Bay appeared to be glacial cliffs, several hundred feet of ice dropping sheer into the sea. Above the cliffs long low snow slopes disappeared into the clouds which hid the mountain tops. The slopes converged towards the centre of the island. We conjectured that those slopes might be the lower skirting of Big Ben. A break in the glacial cliffs proved to be Fairchild Beach, the only landing beach up the coast visible through glasses. The shore was very stony. Higher up were green mounds, which might be mud swamps. The background was low hills, covered with green vegetation. The hills curved round in a low chain to the western coast of the island. In the infrequent sunshine green hills looked rich and bright,

in marked contrast to the snow slopes and bleak grey cliffs. A flat plain of boulders and shingle ran round the base of the hills.

The L.S.T. steamed slowly into Spit Bay and dropped anchor half a mile from shore. The weather cleared. The sun peeped through the grey clouds, revealing patches of the blue beyond.

Campbell began assembling a shore party for a reconnaissance. The port L.C.V.P. was to be used. But so sudden and violent are the changes in these latitudes that after only an hour Gotley, who had been posted to the bridge for the duration of the landing operations, reported to the captain that the barometer was falling. A change in the weather was imminent.

The captain did not hesitate. Preparations for the landing party were abandoned and the order given to up-anchor.

With her bows pointing to the NE, the L.S.T. steamed out of the bay. The departure was not a moment too soon. The wind came tearing in from the west, whipping up the waves. Grey clouds turned into black ones. Fog descended round the rugged coastline, as if nature herself was laying a smoke screen to hide the secrets of her wild stronghold.

Flurries of snow flew over the wave-tops. In a few minutes the decks and ship's superstructure were covered with a white blanket. Navigation became difficult. On the bridge the clear-vision wipers hummed monotonously. The captain and officers huddled over the chart table.

Dangerous reefs and treacherous shoals surrounded the island. Watchers who ventured on deck counted numerous glaciers through the breaks in the snow and mist. Some glaciers ran into the sea, forming fantastic shapes and patterns. Through glasses the watchers could see huge caves, where the surf pounded the blue ice walls. There were tall pinnacles, like cathedral spires. White grottoes, like pictures from a children's book of fairyland. The slopes above the glaciers ran for thousands of feet into the clouds. They were perfect

natural ski runs, save for the drop of several hundred feet at the bottom into the frigid water!

The only beaches along the coast were narrow strips of rock and boulder at the base of the great cliffs and glaciers. Only the Antarctic natives, penguins and seals, would be able to get their flippers ashore there. An attempt to land in one of our barges would have been hopeless under such conditions. Along the twenty miles of fog-bound coast no suitable landing beach was observed until we approached the northern end.

After two hours' slow steaming, a gaunt headland, rearing five hundred feet in the air, like a natural rock-carved sphinx, was observed through the mist. From the deck of the landing ship the first sight of Corinth Head was remarkable. Resembling a great image of a by-gone era, the head looked down on the small yellow ship in silent disdain as the waves battered harmlessly at its solid feet.

I could not help wondering what Captain Rogers, the American sealer, thought of this great promontory, which he had named after his ship. Had he imagined, like so many other sealers and captains of those days, that he had found a peninsula of the great Southern continent itself? Or was it just another island where he hoped to find thousands of seals? In the middle of the last century so little was known of the Antarctic coastline that many thought it might extend almost to the temperate regions. As we passed Corinth Head half a mile off the port bow, it symbolised the forbidding and ruthless countenance of the island. It was the impression conveyed by the first photographs I had seen at Expedition Headquarters. The head stood there in silent warning—a warning that the island was no place for the faint hearted.

As our small landing ship steamed safely off-shore, a smaller head near Corinth Head, was identified as Rogers Head, named after the sealer. The mass of Rogers Head was an extraordinary shape, like the outline of a Red Indian's

head-dress. Side by side, the two heads stood like a fortress battery, guarding the best beaches of the island.

We sounded the second head and our landing ship dropped anchor three-quarters of a mile from the shore. We lay in partly sheltered waters. Rogers Head to the east and Cape Laurens to the west. The latter was a mountainous tongue of land, making the northern end of the island. The peaks here were above 2000 feet and almost entirely snow covered. Scree slopes at the base of the mountains were black and grey, and a glacier swept down the middle of the range from top to bottom. Lofty white crags alongside the glacier looked as though they might tumble into the sea at any moment, though they had been there for centuries. Water fell hundreds of feet over sheer black cliffs, where the snow above was thawing. At other points the waterfalls were frozen, hanging like thick icicles for hundreds of feet above the sea.

Campbell began to re-assemble the shore party.

CHAPTER SIX

LANDING OPERATIONS

WE WERE to establish a food dump at the northern end of the island, so cases and camping gear were loaded into the port L.C.V.P. According to the initial plan of the expedition, the dump at Atlas Cove was to provide our field men with an operating base at this end of the island.

It was hoped they would be able to penetrate overland from the main camp, which we would try to establish at Spit Bay.

Campbell led the first landing party, comprised half of expedition personnel and naval officers and men. I went along to work the walkie-talkie between the shore party and the ship.

A slight swell was running when our barge hit the water. We managed to cast off the fall-blocks, inexpertly perhaps, but without mishap. At the coxswain's orders, we crowded into the stern. The barge made a semi-circular sweep away from the ship's side, while our comrades lined the deck-rail and wished us luck.

Even in the sheltered waters of the cove great clouds of spray flew in the air as the barge gathered speed. The cold water left our faces numb. Though clad in windproofs, we crouched low to gain all possible shelter from the biting wind and flying spray. Whether it was the escape from the restricted shipboard life or the feeling of exhilaration produced by the speeding barge I do not know, but, whatever the reason, someone burst into song. In a moment we had all joined in. We yelled ourselves hoarse as the barge bounced and crashed through the waves.

The coxswain stopped the motor while Lt. Chris Gold-

smith, the navigator, took depth soundings. Drawing nearer the shore, we could see the small white figures of penguins, erect and motionless, on the rocks and hummocks. More soundings were taken off a stony promontory at the eastern corner of Atlas Cove. The coxswain beached the craft in the lee of the promontory. Down came the bow ramp. We were free to wade ashore. No one moved. The barge had grounded in fairly deep water. We were still twenty yards from dry land. Everyone waited for his companion to make the first move. Dave Eastman, official photographer, took the initiative.

"Well, I'm supposed to get the pictures. I might as well be the blanky hero!" he exclaimed.

With his movie camera slung over his shoulder, he jumped off the ramp and sank to his thighs.

"It's as cold as charity," he yelled, as the water poured in over the tops of his sea-boots, filling them to the brim. Derisive roars of laughter greeted his predicament and increased in volume as he splashed his way ashore. Campbell was the next to take the plunge. The rest of us followed, splashing our way to the beach. I lugged the radio pack-case.

The barking of the elephant seals in the nearby tussock and the shrill protesting cries of the birds, flying inches above our heads, were the only sounds which greeted the first visitors to the island in many years. The absence of other noises was almost disturbing to ears accustomed to the ship-board cacophony. It was the strange mysterious silence of an unknown land.

Atlas Cove stretched out almost in a complete circle to the west and the Cape Laurens Mountains. The beach was stony and littered with hundreds of old dried bones, beaks and animal skeletons. Here lay the bleached skeleton of a whale. Not a tree or a shrub could be seen in the dismal landscape. A wide expanse of flat stony ground spread for a mile to the base of the Baudissin Glacier. Only the lower slopes and pressure ice ridges were visible through the hanging clouds

and mist. Ashore the air was still. At least it was warmer than on the ship's deck.

We unloaded the barge, carrying the food cases to the beach. I set up the radio on the sand. Before leaving the ship I had synchronised watches with Macey, arranging to work skeds every half-hour. Now in my head-set Macey's voice came in loud and clear from the bridge of the L.S.T.

"All ashore safely," I reported.

"O.K. Will listen for you in half an hour."

Two hundred yards from the water's edge, sheltered by a screen of tussock mounds, stood the Admiralty hut. Here the 1929 B.A.N.Z.R. Expedition camped for a few days. Treading over bleached bones and rough stones, we carried the food cases to the hut. Sharp-eyed brown skuas flew low over our heads, protesting against our trespass. The stinker petrels, or "Nellies," dived low over the beach in long strafing runs. Flying inches above the sand, they veered magnificently into the air as they approached us.

To enter the hut, Campbell had to dislodge two big elephant seals lying in front of the door. Belching and protesting, the animals refused to budge. A volley of stones proved ineffective. Only when the animals had been hit on the tail with pieces of driftwood did they start to move out of the road. They lolloped off, leaving behind a putrefied atmosphere from the filthy heap where they had been lying.

A thin coat of snow and gravel, blown underneath the door, covered the floor of the hut. Seven bunks, ranged in tiers, made the interior habitable. Campbell retrieved a Union Jack, which had been left by the Mawson Expedition in 1929. We found blankets and canned emergency rations; the former were little better than rags and the latter were rusted and broken. Candles, plates and mugs were there. Cutlery, with the word "S.Y. Discovery" engraved on the handles, was among the other items. On the walls of the hut were many signatures. Some were indecipherable, but we read, "Q. H. Bullard," wireless operator, S.S. *Kildalkey*—the ship

which carried the French geologist, De la Rue, and his wife, to the island. Another was, "S. B. Olsen, 15/1/129, Kanifjord, Norge." The signature of "Eric Douglas, R.A.A.F." was the only one recognised belonging to a member of the 1929 expedition. While we walked back to the barge the snow began to fall. Some of the party wandered into the tussock grass to look at the seals and penguins. The elephant seals lay in heaps of four and five. They belched and threw up their heads when we approached. If someone threw a stone—it seemed there were few who could resist the temptation—the brutes reared up on their flippers. Opening wide their cavernous mouths, they made a disgusting noise, half-belch and half-growl, as if clearing their throats. "Reeerrrk, arrrrrrrk . . . arrrk!"

After this effort they relapsed into timeless slumber. One seal might watch us with round wide eyes. Another stone thrown into the obscene heap would start the seals roaring again. Some lay in postures too filthy to describe. Others bore savage neck bites sustained in sexual combat.

The over-turned hull of a lifeboat was found near the rock promontory. Oars, rowlocks and a cork bung lay beneath the damaged hull, as though they might have been placed there years ago with a view to future use. No name or paint mark was left on the hull. Men in the naval party thought the boat was of American-type construction. What was the story behind this boat? Who had left it there? There was no answer to be found in the vicinity.

On the beach I looked at my watch. Half an hour was up. Time for the sked. I switched on the transmitter and called the ship. Macey was waiting.

"The captain wants you to return at once," he said. "There's a change in the weather brewing and we're going out to sea again."

The snow was falling in thick flakes when the bow ramp was retracted. The coxswain reversed the motor. The barge backed away from the stony beach. Black clouds, which had

been hovering over Cape Laurens when we landed, had dipped lower. They now hid all but the lower slopes of the mountains.

Cold spray flew over the barge. We crouched low for shelter. The swell was heavier when we drew alongside the landing ship. One moment the barge was level with the main deck; next moment we were in the trough, level with the ship's bottom. Up and down, up and down, the barge rose and fell beside the ship.

To add to the difficulty, the landing ship was rolling and did not afford the barge a full lee. Heavy steel fall-blocks had to be hooked on the fore and aft bridles before we could be hoisted to the boat deck. The blocks gave great trouble. When the barge was in the trough, the fall lines were too short. Steel blocks whizzed dangerously above our heads, banging noisily against the sides of the barge and the ship. Heads were missed by a hair's breadth as the heavy blocks swung from side to side. All hands joined to help the barge crew. The steel deck of the barge was slippery with grease and spray. Men were sliding and knocking into each other as they strained and heaved to get the blocks under control. First one block would be hooked on a bridle, then, just as it looked as though the other end might be secured, the barge would drop away in the trough. Our efforts provided those spectators, safe on deck, with great amusement. To the party in the barge, anxious to get on board, away from the spray and swell, it was not so funny. The worst moment was when the barge was left hanging by one bridle and fall-block. The block had to be released with all speed. If the swell caught us in that position, there was a good chance of everyone being tipped out of the sloping barge into the water.

After a long struggle we succeeded, during a lull in the swell, in securing both blocks simultaneously. Hastily the coxswain signalled the boat-deck. Davit motors whirled above our heads. Winches slowly revolved. The barge was hoisted clear of the water.

We had only made a short journey ashore, but we were cold, tired and wet. A hot shower, a change of clothing and the congenial company of the wardroom worked wonders.

The next day was nearly one of disaster for the expedition. Only the hands of guiding Providence prevented a tragedy. Exactly twenty-four hours after our first glimpse of Big Ben's dome, the ship weighed anchor and steamed out of Atlas Cove "roadstead" on the return voyage to Spit Bay. We were to reconnoitre for a site for the main camp. It was a glorious Antarctic summer morning. The air was transparent. The sky was blue and cloudless, the horizon perfectly clear. On deck the fresh air was sparkling and invigorating. Every breath in the lungs pumped energy through the system and filled the chest to bursting point.

It was a different Corinth Head we passed this time. Waves barely ruffled the smooth water, lapping the rock pedestal of the headland. My companions had been on deck since daybreak at 2 a.m. The southern night only lasted four hours. The daylight died at 10 p.m. There were four hours of twilight before the orange rays of the sun splashed the island. Mountain glaciers reflected every tint and shade. This was the island's finest hour.

There was beauty in the moving shadows as they crossed the long white snow slopes. The shadows slowly lifted as the sun's glow filled the eastern sky. The sun brought an unreal beauty to the grim black cliffs. It was more than the awakening day. It was life to the barren land. Nothing looked so formidable and awesome while the sun was shining. As you looked from the white penguins lining the shore to the bright yellow plane straddling the deck, you bridged the gulf of centuries from the Ice Age to the twentieth century.

Indeed, it was an ideal day for flying. Every day, except during the four days' gale, the air crew and mechanics had been hard at work on the "Duck." They were always testing

the controls, checking the moorings or warming up the engine.

There was a holiday atmosphere on deck as we gazed at the passing coast. In the early daylight the brilliance of the glaciers and ice-cliffs was dazzling. No longer did the sea rip into the glaciers, tearing off great chunks. It lay as flat and smooth as a mirror. A rowing boat could have approached the glaciers in perfect safety. Where there had been fresh falls of ice, the face of the glaciers was a light blue. Patches of this blue ice were discernible in many places against the green-blue of the whole ice front. We sailed past the entrance to Mechanics Bay. This time there was no mist to hide the shoreline. However, we had no opportunity to investigate at close quarters what was reputed to be a good boat harbour. A track was said to lead from Mechanics Bay to Spit Bay.

The landing ship passed between Shag Island and the coastline, the former being a dangerous and uninviting rocky outcrop. Down the coastline the watchers on deck kept a tally of the glaciers we passed. We dropped anchor in Spit Bay an hour and a half later.

The sea was still calm and perfectly blue as Campbell formed up the landing party. This time Macey was to take the radio in the barge. I was to keep contact from the bridge. The others in the party were: Gotley, Campbell-Drury, Dovers, Lt. Goldsmith, Eastman, the cameraman, the coxswain and Navy crew. The same L.C.V.P. was to be used. This time the barge was to tow a small dinghy with two seamen. Later some misunderstanding arose. No one seemed to know why the dinghy was sent with the landing party. The original idea was that if the barge could not be beached, then the landing party might row ashore in the dinghy. As it happened, the dinghy proved to be a source of trouble.

It was only 5 a.m. when I set up the telescopic aerial on the bridge. Lt.-Commander Dixon, ship's officers and expedition members leaned over the rail to watch the barge being lowered. Macey and I had agreed to work five-minute skeds

until the party reached the shore. At first this seemed an unnecessary precaution. At the beginning all went well. The crew cast off the barge without mishap. The L.C.V.P. headed for the beach, towing the dinghy. On the bridge we were smoking and chatting. I worked a test with Macey. He reported "All O.K." I had scarcely switched off the transmitter when someone on the bridge cried out:

"Look at that surf, will you!"

The excited voice drew all attention to the barge. Glasses and the telescope were focussed on the craft, which was seen entering choppy surf. Great clouds of spray flew over the barge, at times hiding the yellow craft from view. One moment she was plainly visible above the rollers, and the next moment she had vanished out of sight. With our experience of the previous day in mind, those watching from the bridge knew the barge must be taking a pounding. The men with glasses kept up the commentary.

"She's taking a battering! They're in broken water!"

"They'll be in the drink unless they bloody well do something!"

To our surprise, we saw the dinghy was loose. The two men aboard were rowing for their very lives to keep out of the breakers. But let Gotley, the forecaster, who was aboard the barge, tell the story, as he did on his return a few hours later:

"The purpose of our trip was to take soundings, and later reconnoitre for a camp site. In tow was the dinghy which, for some reason, was slipped outside the breakers. After taking further soundings inshore, we noticed the men in the dinghy were rowing hell-for-leather for the shore. They were riding the breakers like a Bondi surf boat!

"It was soon obvious they were in difficulties. We raced to their rescue and slipped them a towline. We managed to drag them back beyond the breakers. On the shore we could see dozens of seals and small numbers of penguins. The seals were bathing in the surf. More soundings inshore warranted

an attempt to beach the barge, although the wind was freshening, causing the surf to rise. An anchor was dropped astern to help us off the beach when we left. We straightened up for the run shorewards. Surf conditions worsened. Just as the bow ramp was about to be lowered, Lt. Goldsmith ordered full speed astern. We would have been swamped if the ramp had been lowered! Unfortunately, something went wrong with the anchor. It had to be cast off. In doing this, the rope fouled the propeller shaft and left us helpless. We were broadside to what was now a pounding surf. A big roller caught us and we were back on the other beam. Frankly, I thought we had 'had' it. I remember looking round. I started to count the party, in case the worst should happen. It was then I found there were thirteen of us! I think many others thought the same as I did. Clothed, as we were, in our heavy, unwieldy garments, weighed down with seaboots, our chances of survival would have been small indeed."

Meanwhile, the two men in the dinghy were rowing like men possessed. They looked to be in danger of being carried on to the rocks and glacial cliffs at the western edge of the beach. It was impossible to see everything clearly from the bridge because of the size of the off-shore swell. Dixon was following every move through the glasses. The barge seemed to be beam on to the surf. Waves were breaking over the craft, pounding and driving it towards the rocks. I had the sensation of looking on helplessly at an unavoidable tragedy. Macey came on the air again.

"Stand by! Stand by! We're going to get wet, son. I think this barge's 'had' it."

There was a pause. All eyes were strained towards the shore, watching the drama being enacted half a mile away. Macey's voice came vibrating through the head-set:

"Message from Campbell to Dixon. Message from Campbell to Dixon. Urgent. Urgent. Barge in difficulties. Send the work-boat to tow us off!"

The work-boat was moored to the after boom. The cap-

tain immediately ordered the boat to be manned. Without waiting for further instructions, Johnny Abbottsmith, the expedition engineer, swarmed down the rope to the boat, calling two sailors on the deck to follow him. The two men happened to be members of the catering department, enjoying an off-duty spell. They were not seamen, but they did not hesitate. Trouble was experienced starting the motor. When Abbottsmith pushed the dipstick into the fuel tank, the answer was obvious. While one of the scratch crew men filled the tank by means of an empty pork-and-bean tin found in the bottom of the boat, Abbottsmith steered towards the crippled barge. The two men in the dinghy had managed to hold their own, but were nearly on the point of collapse when taken in tow.

The shore party had been away for more than three hours, but they were not dispirited by the failure to land. They had left the ship with tents, kitbags and food, intending to settle in. Now they were back on board. Our plans were recast. The attempt to establish the main base at Spit Bay was abandoned.

It was a wise decision. To land all stores and equipment at Spit Bay would have been a difficult undertaking. The Bay was wide open to the north-easterly winds. There was no shelter in which the landing barges could operate.

The clouds gathered over Spit Bay as the L.S.T. up-anchored and steamed once more along the coast to Atlas Cove.

CHAPTER SEVEN

DISCOVERY FLIGHT

BUT MISFORTUNE continued to dog the landing operations. On December 13 a party stood by ready to go ashore at Atlas Cove in the work-boat. The port L.C.V.P. was found to have suffered a damaged propeller during its Spit Bay buffeting. It was under repair by the engineers. It was intended that the work-boat party should live ashore in the Admiralty hut. Several possible camp sites existed in the Atlas Cove area. Each one would have to be examined by a reconnaissance party. Then a final decision could be made. One site was at the western side of the beach. Another was in the vicinity of the Admiralty hut. Circumstances favoured the ultimate selection of the latter. The Admiralty hut had weathered the storms and gales of the island for many years. It was as sound as a bell. Waist-high tussock mounds surrounded the area. These would provide useful shelter for our pre-fabs during their assembly. In addition, the Admiralty hut area was near the water, a worth-while consideration if the landing ship was not beached. Objections to the site included the absence of a fresh water supply in the summer and the proximity of the elephant seals. However, these objections would apply to almost any other site. Also the proximity of Rogers Head and other rock masses might cause some interference with our radio communications.

The camp site considered at the other end of the cove came to be known as "Windy City." This area, favoured by a section of the expedition, was at the junction of two winds which funnelled through West Bay and South-West Bay. The site was also exposed to the east winds. However, every

site had to be examined. A series of reconnaissances were undertaken for this purpose.

Macey, who had been observed making discreet trips to the ship's radio-room during the voyage from Fremantle, announced his engagement five minutes before leaving on a shore reconnaissance. The romance was a happy sequel to an acquaintance begun during his "Trainee Penguin" days at Ballarat. His was the fourth engagement among the fourteen men of the island party. In the fashion of the day, the occasion cost him drinks for the whole wardroom.

The work-boat party was scheduled to leave the ship's side after breakfast. The party included Lambeth, Compton, Jacka, Ivanac, Chamberlain and Jones. Carroll was to go along to take tide readings with a measured pole. Kitbags, personal gear, a tent, cooking pots and pans were loaded into the work-boat, slung amidships on the starboard side.

The shore party was ready to embark on the deck as the seamen prepared to lower the boat. A fresh north-easterly was blowing. A gently rolling swell ran in between Rogers Head and Cape Laurens. The landing ship lay broached to the swell. When the work-boat was hoisted in mid-air, preparatory to being swung over the side, the landing ship began to roll. No holding lines had been rigged to the work-boat. The boat began swinging in the air. A dozen seamen threw their weight against the work-boat in an effort to control its motion. It was a hopeless task. The work-boat weighed fourteen tons. It was a wonder the men were not skittled down like ninepins.

Nothing could hold the boat. Plenty of shouting and free advice was given, but in the confusion of the moment nothing practical was accomplished. The boat swung against the derrick winches, damaging her rudder and propeller. Several sailors narrowly escaped injuries. The work-boat's hull was holed just above the keel and it was only then that the boat was lowered to the deck. Alf Hayter, the jack of all trades,

soon had a repair gang to work on the boat, but the landing venture had to be postponed.

As the weather remained fine, Pilot "Smithy" was given the "go-ahead" sign. Soon the single engine of the Walrus amphibian was beating out a rhythmic roar on the deck. The flying crew was a New South Wales combination—captain, and the pilot, Fl.-Lt. Mal Smith, of Sydney; Warrant Officer Peter Swan, photographer, and Warrant Officer George Dunlop, radio operator. Eastman went as official photographer. Before the Walrus was lifted off its cradle by the derrick boom, the landing ship was headed into the swell. After a final "O.K." from the mechanic, the Walrus was swung over the side. This time holding lines had been run from the nose and tail of the plane. Several "near-misses" occurred when the fuselage brushed the ship's side. The landing ship still had a slight roll. Holding lines kept the propeller and tailpiece clear. A mishap was avoided. The plane rode the swell like an island gull. The mechanic climbed to the upper wing and withdrew the release pin. "Smithy" gunned the motor and headed the machine round to face the swell. Bumping up and down on the waves, the machine taxied over the water for several hundred yards before rising in the air.

Few clouds were overhead. The sun shone in a perfect sky. Twice the amphibian circled the landing ship before it disappeared, a fading yellow dot, in the direction of Big Ben Peak.

An hour later I was relaxing in the cabin when the door suddenly burst open. "Shorty" Carroll came in. He looked breathless and excited.

"D'ye hear the news, Art?" he yelled. Without waiting for an answer, he told me. "The plane reached 10,000 feet without flying over the top of Big Ben. "Smithy" asked for permission to fly over the top, but they told him to come back as there's a bad blow coming."

Indeed this was news. The mountain was thought to be no higher than 7500 feet. I followed Carroll into the wardroom. Everyone was talking about the flight. It seemed to be the first success of the expedition.

Meanwhile, the amphibian landed safely at Atlas Cove and taxied to the beach. The men pulled the machine high on the sand, anchoring it down with guys and concrete blocks. An excited crowd awaited the flyers' return aboard ship. In the wardroom we toasted the aircrew when they appeared. We insisted upon hearing the story first-hand from "Smithy" himself.

"I never thought it was possible to see such a magnificent sight as that mountain," said "Smithy" in a voice which carried conviction. "From the top we saw white everywhere we looked. We had been climbing all the way, flying over the great valleys and the rocky ridges which run down the mountainside. By the time we were taking to climb, I knew the mountain must be higher than we had been told. When the cockpit was level with the top of the dome, the altimeter read 10,000 feet. But that was nothing! We saw another peak about a thousand feet higher. It was mostly hidden by clouds, but we could see the top sticking up like a pimple."

The discovery of the second peak was a surprise to all. Nothing in the history of the island gave any indication of this possibility. The sealers must have known, but then it seemed they must have known plenty which they did not tell.

"Smithy" said the second peak might not be visible from the ground. "It is on the west side of the mountain and is hidden largely by the dome," he went on.

Before climbing to the mountain top, the Walrus had flown down the coast to Spit Bay, photographing the country. They had sighted an unknown lake on the western side, near the end of the island.

"I don't know who names places on the maps, but I'd like that lake to be called Lake Winston," "Smithy" continued.

"We followed the coast up the west side, where we photographed the remains of the old sealers' settlement of 1874."

When we saw the aerial photos a few days later, the circular walls of the settlement were plainly discernible. There appeared to be no roofs to the huts, only the protecting barricade of stones.

The flyers said the western side of the mountain appeared to be a gradual snow slide from the top down to the sea. A ten thousand feet toboggan run!

"Sure, boy, you could slide all the way down, but don't ask me what you'd be like when you hit the bottom," drawled Dave Eastman, a proud Canadian from Vancouver.

That evening formalities of rank and service were forgotten. Warrant officers mixed with officers and civilians in the wardroom. We all felt the aircrew had done a magnificent job.

In a corner Bob Dovers, our surveyor, was talking to "Smithy."

"I'll bet you that mountain isn't 10,000 feet high," said Bob.

"A quid it is," said "Smithy." "You'll find out when you try and climb it!"

But the bet was never settled.

The work-boat party managed to get ashore that evening in an L.C.V.P. "Shorty" Carroll erected the tide-pole near the rock promontory, which we called Wharf Point. The party erected a tent near the Admiralty hut and settled down for the night. It was still dark when "Shorty" rolled out of his sleeping bag to resume the tide readings. He flashed his torch over the ground as he stumbled down to the beach. The thin light beam was a pin-point in the blackness. Trudging over the rocks and hummocks, he was startled to see two saucer-like eyes staring at him from the ground!

For seconds he stood stock still, not knowing what to do. Then he heard a shuffling noise on the sand. The eyes dis-

appeared. As he approached the beach he realised he had disturbed an elephant seal in the middle of its slumber. He turned the torch on the water. The tide was higher than he had expected. Seals were swimming round the pole.

"I'm blown if I'll risk having my toes nipped off," muttered "Shorty," and turned for home.

Once ashore, "Swampy" Compton soon proved his adaptability to the life of exploration. He killed a large elephant seal, cutting out the heart and liver. The party camped near Admiralty hut ate the liver for dinner. It was pronounced excellent.

The seal carcase was left on the tussock where the animal was killed. While the men were in the hut eating, the skuas and the Nellies, or "stinker petrels," swooped down on the freshly killed meat. They started picking the skeleton. Expedition members, coming ashore for the first time, reported they had seen a large bird, distinguishable for its brilliant red head. It was only after they had seen the stinkers grabbing and fighting over the carcase that they realised their mistake. As though scenting the fresh meat, the stinkers had gathered from miles around. Now, like vultures, they screeched and fought over the choice remains. Hopping around on their webbed feet, wings half extended, they batted round the carcase. Pushing their heads into the intestines, they probed around inside the carcase with their long beaks. This hideous spectacle solved the mystery of the birds with the bright red heads.

If disturbed in their revolting repast, the stinkers would retreat warily, all the time screaming their discordant protests. They were most loth to leave. When we shot several in the middle of gorging, the other birds turned and picked those that had been hit. If, by extreme chance, a stinker was hit by a stone, the effect would be negligible. The bird would just waddle off on its splayed feet to a position beyond the thrower's range. If chased, the stinker waddled a little fur-

ther away. When the disturbers left, the birds returned to the carcase. They gorged to bursting point. Wobbling from foot to foot to the water's edge, they floated on the surface, too heavy to fly. Others, even more gorged, were unable to reach the water. They would lie down away from the carcase, legs and wings tucked in.

When you approached the stinkers under such circumstances they would make frantic efforts to become airborne. They reminded our ex-Air Force members of an overloaded bomber leaving a jungle strip.

Normally the stinker petrels needed a minimum of fifty yards of land or water over which to taxi before gaining sufficient momentum to soar. The exact distance, of course, depended on the strength and direction of the wind. On calm days they had a hard job getting in the air at all. When gorged, the stinkers performed at their worst. As the pilot of the overloaded plane might jettison fuel to clear palm trees at the end of the strip, so the stinkers unloaded their stomachs. They would vomit before they reached the water. This lightened their load. Turning sideways to the wind, they beat their wings. Working their legs alternatively, paddle-fashion, they flapped their wings hell-for-leather, starting to run over the water. Then they soared off into space.

We saw gruesome acts during our first days ashore. The stinkers were revolting when they vomited, but, horror of horrors, their companion birds pounced on these tasty morsels and wolfed them down.

In flight, the giant petrels were the exact opposite of what they were on the ground. Graceful as gliders, they could bank and turn on a wingtip. Seldom did they flap their wings in flight, but they soared majestically with the air currents. When they flew above the beaches they would travel for hundreds of yards, one wing almost brushing the sand.

From miles the stinkers would spot anyone walking along a beach or open space. They had scouts out all day patrolling the beaches, penguin and seal haunts in their search

for prey. They flew along in magnificent strafing runs, and would soar feet above our heads. Several times we brought penguins back to the camp because they appeared sick. We did not wish the stinkers to make a meal of them.

The brown skuas were almost as bad. In appearance they were more attractive. They soon began to hang round the temporary camp. One morning some of the party saw the skuas attacking a small seal. The animal had been hurt in some way and could not move away. The skuas dived at the seal's head and picked out his eyes. The seal, blind and defenceless, soon succumbed.

From the beginning we noticed how the island teemed with bird life; a grim prehistoric life, in which there was no room for the halt and maimed. Truly only the fit survive in the Antarctic.

The continued good weather induced an attempt to circumnavigate the island. The L.S.T. up-anchored and steamed out of Atlas Cove roadstead. From the deck Cape Laurens was a grim and hostile habitation of carrion birds. Perhaps hundreds of feet high in the black cliffs might be the homes of the great wandering albatrosses of the Southern Ocean? The albatrosses had followed the ship all the way to the island.

Steaming at dead slow, probing the ocean bed with the echo-sounder, the ship reached Red Island, northern tip of Heard Island. She had rounded the point when the weather took a turn for the worse. Down came the familiar blanket of fog and mist. Observers on the deck, however, had already noticed marked differences with the shape of the coastline, as compared with the outline drawn on the expedition map. Bob Dovers, our surveyor, studied the coast through glasses. Before the rocky cliffs became hidden from view, he had managed to mark the principal headlands and bays. He saw that Red Island was a tied island. It looked as though you could easily walk from the end of Cape Laurens to the island. With

the danger of uncharted shoals, navigation in the fog become risky. The captain decided to return to Atlas Cove.

Further reconnaissances were made of the Windy City area and Dovers and Lambeth, the geologist, examined the area between West Bay and South-West Bay. Bad weather though interfered with several of these trips.

CHAPTER EIGHT

ANOTHER TRY

THE FIRST attempt to land expedition supplies was made by L.C.V.P.'s on December 15. In the bright summer sunshine personnel were out of their bunks, breakfasted and ready for the fray by 3 a.m. We were not all required at once. Campbell made a preliminary reconnaissance, with Dovers and Abbottsmith. They took a barge to Windy City. In their absence we kicked our heels on the deck or played the gramophone in the wardroom. As often occurs during a period of waiting, a string of rumours went the rounds. The biggest whopper circulating that day was that the L.S.T. would beach at nine in the morning. The captain and officers would have been highly amused if they had heard the other stories.

When Campbell returned to the ship, expedition personnel and sailors were called to load the two barges. One barge was lowered level with the deck for easy loading. The other craft, just returned to the ship, was moored forward, bobbing up and down in the north-easterly swell.

Alf Hayter, assisted by two seamen, lowered buckets of oil over the side in the path of the swell. Unfortunately, the oil was partly frozen; it was too thick to spread over the water with any effect.

Landing stores were coming up from the tank space in cargo slings. As no one was in the barge to handle the cargo, it began to accumulate on the deck. Campbell swung agilely over the side and slid down the mooring rope into the barge. Dovers followed him. While cargo slings swayed above their heads, the two men endeavoured to maintain their balance in the barge and guide the cargo, which might easily have

fallen straight down on their heads. Working hard, they managed to handle the slings.

Another gang loaded the other barge. When the call came for a crew to man the craft, none of us knew who was to make the complement. Campbell, from the other barge, called out to Ivanac, Abbottsmith and myself to man the craft. I called out to Macey, Chamberlain and Campbell-Drury, who were in the loading party.

"Going to be in it, boys?" I yelled.

"Sure! We're coming," they shouted, vaulting over the deckrails into the barge. By luck and concerted action, we unhooked the fall-blocks and cast off. A moderate swell was running. Dull grey patches of cumulus hid the gaunt cliffs of Cape Laurens.

Our coxswain revved the motor, churning up the wash astern. Heavily loaded, the barge rode better. Spray blew in our faces in great clouds. We shouted to each other above the roar of the motor.

"Where the hell are we goin'? Anyone know?"

"Yep. Windy City, first stop."

"First I've heard of it. Why doesn't someone tell us what it's all about?"

"Who gives a damn! We'll soon see when we get there!"

The last remark typified the nonchalant and cheerful spirits of my companions. "We'll see when we get there!" That was the way the men of the landing ship and expedition party sailed into unknown dangers.

The second barge left the ship's side and followed our wake. The swell increased near Windy City. Large waves battered the rocks at the foot of the mountains. We muffed the first run to the beach. The stern anchor was dropped too early. The barge ran the full length of the anchor line, but the water was too deep to allow the bow ramp to be lowered. It would have swamped the barge.

We backed off and hauled in the stern anchor. The coxswain gunned the motor for the second run. This time the

anchor was dropped nearer the shore. A second later the barge grounded with a loud scraping noise over the rocks and stones. We stopped halfway up the sloping beach. Down came the bow ramp. We jumped a hore, more like kids playing an exciting new game than members of a scientific expedition. We were proud of our first solo landing! A few minutes later the second barge grounded twenty-five yards away.

In mysterious fashion, Jack Ivanac found a wheelbarrow in the barge. Loaded with tents, he trundled the barrow down the ramp. Pushing into the water, he soon came to a full stop. The barrow stuck, front wheel lodged firmly between rocks. With helping hands lifting the front and Ivanac pushing for all his worth between the shafts, the barrow was transported safely ashore.

Tents, tarpaulins, bags of wooden pegs were carried ashore to a dump above high-water mark. Bags of tent pegs burst open. How concerned we were! Later the pegs proved to be useless in the soft volcanic soil and were too fragile to be driven between stones.

Emergency food stores were trundled up on the barrow. Many cases were marked "Salted Peanuts." How comforts came to be with emergency rations was a puzzle. Army rations were in the second barge. While I was helping Campbell and Dovers unload their barge, I failed to notice the others signalling. The first barge left without me. I followed in the other one a few minutes afterwards. Before we had cleared the stony beach, the coxswain shouted: "The steering's failed. She's not answering to the helm!"

By now the first barge was halfway back to the landing ship. To our concern, the craft seemed to be heading towards the dangerous rocks along Cape Laurens. With the coxswain juggling the wheel in an effort to steer our own craft, we followed the other barge as best we could. It was heading straight for trouble. While watching, we forgot our own predicament. When the first barge was almost on the rocks, it

began to slow down, reversed and then slowly backed off against the surf. Possibly the distance between us made the position appear more serious than it was. The rocks ran off-shore for a distance of two hundred yards from the cape. Some were submerged by the surf, hidden traps which would rip the bottom out of a barge. Meanwhile, our coxswain, adding to the tale of woe, reported: "Water filters not working!" Juggling the helm, he managed to gain some measure of control, and we headed for the other side of Atlas Cove to pick up the party camped in Admiralty hut. The coxswain would not risk beaching the barge, so the party had to wade out in the cold water. This party comprised Jacka, Jelbart, Lambeth, Gilchrist, Carroll and Dunlop, of the R.A.A.F. We had not travelled far from the shore when the ten-inch signal light on the bridge of the anchored landing ship started winking at us. Dunlop was carrying a walkie-talkie. Unshipping the set, erecting the telescopic aerial, he called the bridge.

"Barge calling ship. Barge calling ship. Go ahead. Go ahead, please."

The message came back like a flash.

"Urgent. Urgent. Stand by the other barge. She's sinking!"

The other barge was a quarter of a mile away. It was low in the water, heading at top speed for the nearest land. We steered, as best we could, towards her. I could pick out the figure of "Lem" Macey crouched in the stern sheets, imitating a jockey. He pretended to whip the barge like a race-horse, urging it to the winning post—in this case, the dry land. The others were yelling and cheering like punters. There was no panic. The episode was treated as a huge joke.

If the barge had been farther off-shore there would have been a different story to tell. With two feet of water in her bottom, the barge grounded safely twenty yards from shore. Finally we ran alongside and took off the personnel. Carroll and the Navy crew stayed on the water-logged L.C.V.P. until engineers could be sent from the landing ship. When the

excitement had died down, Macey related how steering trouble had developed after they had left Windy City. After avoiding submerged rocks by the narrowest of margins, those on the barge deck noticed water gurgling round their boots. When the craft was alongside the landing ship, six inches of water were in the bottom. The added weight of water was too much for the davit motors. The barge could not be hoisted. It was unhooked from the fall-blocks and the coxswain was ordered to make all speed for the nearest part of the shore.

We were all wet and cold. No one complained when word came over the walkie-talkie for the seaworthy barge to return to the ship. Hot bovril and rum were waiting for us in the galley.

Two engineers returned to the waterlogged craft, but further operations that day were thwarted by the weather. It was no longer safe for the landing ship to stay in the roadstead. A strong gale was blowing before the ship had cleared the land. The shore party had to be left at Atlas Cove. We had no communication. Both barges were away. The workboat was still under repair.

Aboard ship the expedition personnel were tired. Most went straight to bed after the evening meal. The wind, freshening from the NE all day, reached full gale force by midnight, when Gotley came down from the bridge.

"It's on again," he remarked laconically, climbing into his bunk. The ship tossed and rolled, depriving us of sleep. At 2.30 a.m. on December 16 the barometer dived to 28.4 inches.

When we got up for breakfast, thick snow covered the decks. Icicles were hanging from the stays and halyards. The wind shifted to SW. The captain took advantage of the change to sneak back to Atlas Cove, in the lee of Cape Laurens.

There were nine men in the shore party at Atlas Cove. Seeing the landing ship make for the open sea, they assumed a bad blow was coming. Taking sleeping bags, blankets and gear from the waterlogged craft, they decided to make themselves comfortable. Six men settled down in Admiralty hut. "Shorty" Carroll and two seamen decided to sleep the night aboard the Walrus plane, moored near the tussock, just up from the beach.

The whole party gathered in the hut for supper. They brewed hot cups of kai on the chip heater. Smoke and fumes poured from the stove. A chimney, made from ration tins and piping, led to the centre of the pyramid roof. The high wind outside choked this outlet. The atmosphere in the hut soon resembled that of a Chinese joss-house. Suffocating smoke forced the men to open the door. Cooked tinned sausages and peanuts completed the meal. Carroll warned the sailors of the possibility of being isolated for some days. He urged them to check the food supplies, and suggested they should ration themselves to two meals a day. Fortunately, they found the rationing was unnecessary. There was sufficient food available for several weeks.

In the cabin of the plane the three men spent a cold, cramped night. The roof was too low for them to do more than crouch. Neither was there room for all to lie down at the same time. Outside it was snowing heavily. The metal fuselage provided shelter, if little warmth. A 60 m.p.h. gale whistled round their retreat.

In Admiralty hut there were no complaints. It was warm and smoky. When the landing ship reappeared off the cove next day, none was the worse for the experience ashore.

CHAPTER NINE

"STAND BY TO BEACH!"

THE LANDING ship had been off the island a week. We had arrived with enough fuel for three weeks' cruising. At the end of this period the ship must return. Otherwise she would not have enough oil to reach Australia.

Constant interruptions to landing operations hampered progress. Time after time the landing ship was forced to the safety of the open sea by the vagaries of the weather. To have stayed at the anchorage off Atlas Cove would have been courting disaster for the ship and the expedition. Valuable reserves of fuel were being eaten away by this enforced steaming.

Attempts to use the L.C.V.P.'s to land supplies had been unsuccessful. Barges were unmanageable in the swell and surf. Constant mechanical attention and servicing was required. The hundred-odd crewmen aboard the landing ship had enough to do, manning double watches and maintaining the routine of the ship. The only small boat left to the expedition was the whaler, suitable only for emergency missions to the shore. It seemed the weather controlled our destinies. The whole future of the operation depended on this important factor.

In Melbourne it had been considered unlikely that the landing ship would be able to beach. The tractor, heavy generators and hut parts were to have been landed by pontoons. It was now apparent that this could only be attempted, with any chance of success, on the calmest of days, but the landing ship did not have enough fuel to wait around indefinitely for fine weather, which might never arrive.

A combination of these circumstances must have influ-

enced the leaders. Campbell and Dixon held conference after conference in the latter's cabin. It took courage to reach a decision upon which the safety of the ship might depend. The danger involved in beaching the ship was considerable. Tides and currents were unknown. Winds switched round to any quarter almost without warning. Furious gales could strike with less than half an hour's indication from local meteorological conditions. The island was far off the shipping routes. Should an emergency arise, it would be weeks before any assistance could reach us.

When the expedition party was sent below to move oil drums and cases to clear a path for the tractor, so it could be driven to the bow doors and down the landing ramp, we knew the die had been cast. The ship would be beaching soon. . . .

"Clatter! Clatter! Clatter! Clatter!"

In the confined space of the tank deck the noise of the tractor was deafening, a thousand gas rattles being whirled simultaneously. Abbottsmith climbed into the driving seat, released the clutch, and the tractor clanked over the steel deck to the bow doors.

It had been heavy work lifting the drums. We had managed to clear the space with the help of a block and tackle, slung from a ceiling beam. Great heaving was required on the loose end of the rope before the drums could be lifted six feet to the platform, where they were stacked.

I was the unwitting cause of general amusement. I grabbed the rope with both hands, jumping off the platform and throwing my whole weight into the effort. Unfortunately, no drum was hooked to the other end. The rope flew free through the pulley-block. I shot down from the platform to the steel deck like a sack of wheat. It was a perfect one-point landing—sore for days!

Our cabin was roused at 5 a.m. next morning when a voice shouted outside the door: "Hey, you blokes; we're beaching

in a few minutes!" This was the news we had been waiting for. We scrambled out of the bunks, climbing into our windproofs. Dashing along the main deck, we joined the others at the forepeak rail.

The night before Gotley had told the captain that he expected weather conditions in the morning would be favourable for beaching. Now it was a calm day, little wind and no surf to speak of. The sky above was overcast. It was cold on deck. The ship was manoeuvring off Wharf Point, sneaking warily over the unknown rocks. Lookouts were on duty at either bow. Lt.-Commander Burgess, executive officer, directed operations on the foredeck. Wearing a telephone headset and a microphone strapped to his chest, a seaman followed the officer, passing the instructions to the bridge. First one propeller and then the other was churning up the water. Several times the ship was in direct line with the stony shore, but at the last moment the bows swung away. Soundings were being taken by forward hands. On the foredeck we were so close to Wharf Point, a companion remarked: "I could hit those elephant seals with a tin of sardines!" The seals lay on tussock clumps fifteen yards away from the water, looking up at the steel ship with complete disdain.

There was nothing dramatic about the beaching. In fact, the operation became tedious to watch. No risks were taken. The careful manoeuvring of the ship continued for a couple of hours.

We became tired of watching and wandered back to the wardroom for breakfast. At the toast and marmalade stage, a shake and quiver ran the whole length of the ship. In the excitement the rest of the meal was forgotten. We ran back to the forepeak. The bows were hard aground. Twenty yards separated the ship from dry land. Manoeuvring was still proceeding with the stern anchor. Half an hour later the ship was nicely positioned. The long-awaited order came from the bridge: "Open the bow doors!"

The engineer in the forepeak compartment pressed a switch. Electric motors whirred. Slowly the great steel doors opened. Another order came from the bridge: "Lower the ramp!"

On the forepeak I felt as though I stood atop the battlement of an old castle. The drawbridge was being lowered. It would span the protecting moat which surrounded my castle. The illusion was short-lived. Instead of a cavalcade of armoured knights charging across the drawbridge, a party of hip-booted seamen waded across the ramp to the shore. Wash churned up by the propellers lapped the rocks and shore. The extension ramp was run out.

A mixed party of seamen and expedition personnel had been landed at Atlas Cove. They made their way round to the tip of Wharf Point, where the landing ship was beached. The shore party began heaving rocks and stones into the water with great gusto. Their task was to build a jetty round the extension ramp. They worked hard for an hour. Whether it was a rising tide or that their arms became tired with the effort, I don't know, but the jetty never appeared above the surface of the water. The stones thrown into the water, however, served to clear a track up the sloping shore. In the tank space Abbottsmith worked on the tractor. After preliminary stutters, the motor roared into life. He climbed into the seat, and the tractor clanked slowly down the ramp.

Everyone watched the tractor. Our most valuable piece of equipment was going ashore. A disaster now and the work of unloading the stores might be insuperable. It was an agonising moment. The tractor reached the end of the extension ramp. The front part of the machine dived into the water. As the treads touched the rocks, Abbottsmith opened the throttle. The machine jolted forward, biting its way over the rough bottom to the beach. We yelled and cheered as the clattering monster rocked its way to the safety of the tussock. Campbell ran forward. Gripping Abbottsmith by the hand, he said: "Good work, Johnny!"

Jeep trailers and generators followed the tractor. Holding lines at both ends of the vehicles were used to prevent them running away down the ramp. Even so, there was a narrow escape with the last generator.

A seaman, returning from shore, walked up the ramp as the generator began its journey. A rear panel on the generator trailer broke with the strain of the holding line. The trailer galloped down the ramp. Warning shouts enabled the seaman to jump clear as the vehicle canted against the starboard bow door. To avoid future accidents, a plankway was laid down for those returning from shore.

In the tank space a party began rolling out the oil drums. Each one weighed about 400 lb. The drums were easily rolled down the ramp to the shore. Here they had to be lifted over rocks and pushed up a long slope to the flat tussock. Ashore three men were needed on each drum. Solid, back-breaking work it was, pushing and heaving the drums over the rocks. Relays of men pushed the drums up the slope. The uphill shove became known as "The Burma Road." Soon there were fifty men pushing and shoving the drums. Off-duty crewmen sacrificed their sleep time to lend a hand. It was slow and heavy work. Each drum became heavier than the last. Though it was a bitter day, we perspired freely. Those who had come ashore in heavy clothing soon discarded outer garments. We worked in trousers and sweaters. Sea-boots were unsuitable for working over the stones. They were too loose at the ankles. Many of us changed into the sturdy military boots.

Abbottsmith 'dozed a track through the tussocks to the Admiralty hut.

The weight of the drums was beginning to tell on bone and muscle. It was Jim Lambeth, the geologist, who eased the strain of the "blood-and-guts" work. He emerged from the tank, carrying many lengths of thin timber. He laid down a track from the end of the ramp to the top of the slope. The runners enabled the drums to be handled with half the effort.

Though he had had less sleep than anyone during the sea journey, the captain came down to lend his strength behind the drums. Campbell worked alongside the expedition men, heaving and shoving with the best of us. It was an all-in effort in every sense. Other sailors formed an endless human belt, passing food cases from man to man.

A welcome pause to the slogging toil came when the roar of "Doc" Gilchrist's motor bike reached us from the tank space. Everyone paused to watch. The spluttering machine sounded like a machine gun. We stood and cheered encouragement when the "Doc" appeared at the head of the ramp, astride the throbbing bike. Down he bumped, splashing through the water to the rocks, disdaining assistance. He rode the jumping machine up the slope to the flat, to a thunderous chorus of "Whoopees! Yoohoos! and Yippees!" He was the first man to ride a motor cycle in the Antarctic. What he intended to do with the machine remained a mystery, but it was clear he made a most impressive landing on Heard Island.

Sledges made by the ship's carpenters were loaded with drums and hauled up the shore by the tractor. This method speeded up the work. When we knocked off for the evening meal three hundred drums and tons of food cases were on the shore. An unusual air of optimism could be sensed in the wardroom. "Give us another couple of days like today and we'll empty the ship," they remarked.

My muscles ached in places they had not ached for years. It was early to bed for all. There was satisfaction in being dog-tired. It meant we were nearer that day when we would be off the ship, with all the equipment on the beach.

The weather still had tricks to play. Conditions began to deteriorate even during the optimistic conversation in the wardroom. The ship withdrew from the beach at 8 p.m. A night of tense anxiety followed.

While manoeuvring her way off the beach, the landing ship went aground. By juggling with the propellers, hauling

on the stern anchor, the ship finally sailed clear. Relief was only short-lived. In the freeing movement the stern swung round, this time grounding the ship good and proper. She lay broadside to the shore, a stone's throw from the tussock. A thick fog, settling round the island, added to the seriousness of the position. Officers on the bridge tried every trick of manoeuvre. It was of no avail. Nothing would shift the ship. It was decided to take the stern anchor farther out. The extra pull might move the ship off the rocky bottom. Even in the midst of this precarious situation humour could not be denied.

A party had been operating in the repaired work-boat, taking soundings round the ship and shore. In the fog the outline of the work-boat was only a vague blur. The officers decided to recall the work-boat to take out the stern anchor. They hooted on the siren.

"Whooop, whoooooop, whoooooop, whoooooop!"

The noise was like an air-raid warning starting up, but it never reached a sustained note. From the bridge the work-boat appeared to be stationary. Again the siren hooted. Still no movement from the work-boat. A signaller was called. The ten-inch lamp focussed on the boat.

"Why the hell don't you come alongside?" asked the ship. There was a pause; an answering flicker from the work-boat. The reply was pointed, brief: "We can't. The engine's —ed!"

Those on the bridge nearly tore their hair out. It was the last straw. Others, without responsibilities, split their sides with laughter.

One deck officer recalled later: "If the gale had struck the ship then we would have been helpless. She'd have been beached for all time."

The kindly Providence, which never deserted L.S.T. 3501, came to the rescue. Fifteen minutes later the splutter of the work-boat motor was heard. The boat was soon alongside the ship's stern. Alf Hayter and Lt. Goldsmith supervised

the loading of the anchor, lashing it across the deck of the smaller craft. Twenty fathoms of cable were paid out before the anchor was dropped. With both engines reversing at full speed, the landing ship throbbed and quivered from stem to stern. She struggled and shook in an effort to drag herself off the rocky bottom. It was no use. The winch engine dragged the anchor. The ship remained broadside to the shore. It seemed that nothing less than a couple of tugs would do the job. Once more the landing ship was at the mercy of the elements.

An hour before midnight occurred one of those phenomena for which there is no scientific explanation. Unaccountably the wind shifted to the east. With a full tide running, the ship swung off the bottom.

"That wind saved the expedition," Gotley, the senior meteorologist, declared next morning. "It was only a gentle zephyr, but it did the trick." Gotley could not account for the sudden appearance of the east wind. All pointers indicated that a west wind would come. This would have piled the ship on the Wharf Point rocks.

Gotley could only conjecture that it was a katabatic wind off the glaciers in Corinthian Bay. Months later, after the weather station had been established and he had been able to make a full study of local conditions, the mystery was still unexplained. Perhaps his own words at the time are the best explanation: "There must have been Someone upstairs looking after us."

The east wind swung the ship clear. She moved out to the anchorage in the roadstead between Cape Laurens and Rogers Head. Fog shrouded the land. Main deck cluster lights were illuminated to guide the returning work-boat. The effect was double-barrelled. Hundreds of small "whale" birds, light blue, like large butterflies, fluttered round the lights, settling on the deck, boats, hatchways and ventilators. Seamen hauling in the work-boat were careful not to tread on

them, there were so many. Most of the birds disappeared when the lights were extinguished. Ivanac found two "stragglers" outside his cabin. He took them inside. They slept the night in his sea-boots.

CHAPTER TEN

THE HURRICANE

UP TILL this moment the Antarctic Ocean had been toying with us. Now the ocean made a supreme effort to claim the ship for all time—an experience those aboard the landing ship will remember for the rest of their days.

This tough ship had already taken a terrific battering on the voyage from Fremantle, off the island and on the dangerous rocky foreshore at Wharf Point. Old hands had sneered at the welded, hastily assembled vessels that helped win the war, but here was one of them doing the same kind of job in peace-time.

It was the end of the second week of the landing operations. Two expedition parties were now camped ashore at the Admiralty hut and at Windy City. Campbell was at the latter camp, with Dovers, Jelbart, Jacka, Ivanac and Chamberlain. The last two were erecting their magnetic station. With the data collected at Heard Island, and later at Macquarie, they would check the position of the constantly shifting South Magnetic Pole. They had been forced to abandon the idea of establishing a second magnetic station at the southern end of the island.

At the Admiralty hut, Compton, York, Abbottsmith, Lambeth and Gilchrist were camped. The engineer had hooked up one of the generators, and power and light were available to the hut. Conditions inside were cosy, if at times smoky from the chip heater, but the men had a variety of rations.

Those at Windy City were not so well off. Living in tents, without electric power, the campers subsisted on humbler fare.

The first indication of the impending turn of events was given at dawn on December 20. At his post on the bridge, Gotley, the senior meteorologist, was worried. The wind was from the SW. In the chart house the barograph was diving rapidly—a sure sign of trouble. Gotley reported to the captain.

“Look’s bad, sir. It’s going to blow.”

Gotley warned against any attempt at beaching the ship, or of the Walrus making another flight. The aircrew were as keen as mustard to take the air again, but the final O.K. had to come from the weather man.

The captain accepted his advice. Weather conditions continued to deteriorate during the afternoon. Finally the captain offered to take aboard all personnel in the shore parties. At the same time, all seamen were recalled to the ship. Expedition members decided to stay in the two camps.

Norm Jones, who had been cooking for the shore parties, and “Shorty” Carroll, assisting him, had intended returning to Admiralty hut. The wind started to blow before they had a chance to leave the landing ship. By 8 p.m. a 50 m.p.h. gale was blowing in Atlas Cove. So steep was the barograph fall that Gotley decided to keep an all-night vigil.

By 3 a.m. on December 21 the pressure had fallen to 28.14 inches, lowering by a fraction of an inch the Kerguelen record for these latitudes. The NE wind was stiffening. Gotley roused the captain and warned him of the seriousness of the position. At that very moment, driven by the high wind and rising seas, the landing ship began to drag both anchors.

Dixon immediately ordered that the ship be prepared for the open sea. In the black of the night lookouts saw shoal waters off the coast. Gotley nearly fell down two companion ways in his haste to rouse Lt.-Commander Burgess and Mr. Hayter.

Both propellers were beating out full speed. The landing ship should have been travelling through the water at ten knots. Such was the force of the wind and sea that she was

still dragging her anchors! The small group on the bridge stared anxiously at the towering outline of Cape Laurens, looming ever nearer on the port side, a black shadow against which the ship was being inexorably driven. For long minutes it seemed that nothing could save the ship from disaster. Slowly the strength of the accelerating engines made itself felt. The ship fought back against the force driving her to destruction. How near was the ship to the Cape Laurens rocks? None on the bridge dared hazard, but they estimated the ship dragged her anchors for three miles before she reached the safety of open water!

Even then her safety was not assured. The wind raged with unprecedented violence. It shook and rocked the ship in a manner worse than anyone aboard had ever experienced.

Gotley stumbled into the chart house to look at the barograph. The pressure had fallen so low the pen-arm had fallen off the clock drum chart, and was lying below the flange. Gotley calculated the pressure was 27.88 inches, an all-time low in these latitudes. The wind whipped round from the NE to the SW, bringing a hurricane.

"It was a night I'll remember for the rest of my life," Gotley said next morning. "If the captain had not acted so quickly nothing would have stopped the ship from being blown on the rocks, but it seemed ages before we began to move away from Cape Laurens."

The majority of those aboard the landing ship that night did not know of the perilous situation. They tossed fitfully in their bunks. Sleep was impossible. Only the duty officers and seamen called out in the middle of the night knew of the emergency. Carroll and I spent a sleepless night in our cabin. Gotley was on the bridge. The ship bumped, banked and shuddered. At 5.50 a.m. I called out to Carroll in the top bunk.

"What's going on, 'Shorty'?" I asked.

"It's been a wild sort of night," he answered. "We might

as well stay in bed. If anything happens, we'll be as comfortable here as anywhere!"

I agreed with him, turned over and tried to sleep. It was no good. I was rolled around in the bunk. A few minutes later Gotley came into the cabin. He looked weary and worried. He told us what had happened during the night.

"Go up on the bridge. It's a terrific sight. We're in the thick of a 100 m.p.h. hurricane!" he said.

To reach the bridge it was necessary to grip both handrails and proceed step by step. In this way I arrived at the boat deck. I shoved with all my weight to open the bulkhead door. Next moment a giant hand had whipped off my cap, flattening my hair and forcing me back to the companion way. The bulkhead door slammed in my face. I was lucky not to fall down the steps. When I finally made the boat deck, Pilot Mal Smith was sheltering near a ventilator. Half-crouching and crawling round the deck, I joined him.

The strength of the wind made it impossible to stand on the open deck. We tried talking, but conversation went the way of my cap. I saw "Smithy's" lips moving, but no words formed.

Dixon, wearing a white roll-top sweater, was in the chart-room with the two officers. The door was locked on the inside. An attempt to open the door would have been the end of the door. The whole superstructure was shuddering in the grip of an uncontrollable element. Vision wipers in the chart-room could not clear the spray off the glass panels. Birds, trying to reach the haven of the island, were observed flying backwards, carried by the wind.

Great white clouds of spindrift flew over the ship. Visibility was down to a hundred yards. Ahead of the bows, waves were being sliced in half. The sea was a seething mass of white foam. The wind cut the waves, forming white trails like smoke flares. The ship's nose rose and fell, then she would shudder from bow to stern. The hurricane tore at the ship, trying to rip out her very heart. The wind reached 120

m.p.h. The mean speed was between 80 and 90 m.p.h. The captain was heard to say: "I was afraid the very deck would be ripped up and rolled back by the force of the wind."

From the boat-deck the sight of the sea under the hurricane surpassed anything I had seen or imagined. In a desperate, thrilling way, it was magnificent. It was fantastic to think the ship could ride through such a sea and wind. Yet here she was, before my very eyes, rising up and down, meeting every challenge of the sea.

After a time the fascination of the storm wore off. I felt the pangs of mundane hunger and groped my way down to the wardroom. During breakfast Lt. Goldsmith came down to warn us that the ship was going about. The wind had shifted. We were to run for the lee of Cape Laurens. The lieutenant warned us to clear the tables. Fiddles would be useless. Hastily we finished our meal, cleared away the crockery and awaited the worst. When it came, the roll of the ship was not as bad as we anticipated. Chairs, ash-trays, gramophone and records slid across the deck. Amazingly, nothing was broken.

Life went on undisturbed. The SW hurricane continued throughout the morning and fog blotted out the island. The captain steered by radar to approach the shelter of Cape Laurens. Twelve hours before these grim black cliffs had been our worst danger. Now we looked to them for refuge. When the mist cleared the men inside the chart house were appalled to see the great outline of Rogers Head dead ahead! In the bad visibility the ship had overshot the entrance to Atlas Cove. Only by swinging hard to starboard did the ship come round in time to avoid the shoals surrounding the rocky promontory. More anxious moments for those on the bridge, but the tired men were now full of confidence in their ship. Finally, at midday, the landing ship limped into the lee of Black Cliff. Visibility was still bad. Two anchors were dropped. After securing the ship, the captain went below to his cabin, worn and exhausted from his ordeal on the bridge.

In Admiralty hut the men had settled down to make themselves snug for the night. Good food, a cosy fire and blankets. Compton, acting as cook, prepared enough tea for fifteen men. The sailors, working ashore, had been expected to stay, but only half that number in the hut had no difficulty in finishing the meal. Apple fritters, a dish which Compton prepared with relish, rounded off the feed. Outside, across the stony flat, the wind rose to gale force. The hut shook and shuddered, straining at the wire guys holding the roof.

Jim Lambeth wrote his diary before turning in. He was thinking of his experience in the work-boat earlier that day, when Campbell and Dovers, with a Navy crew, had taken a L.C.V.P. to Windy City with another load of stores and equipment. A seaman on the bridge of the landing ship noticed Campbell semaphoring with his arms from the stern-sheets of the barge. The craft, swept broadside to the beach by the surf, was in danger of being broken up. At the time, Lambeth and Abbottsmith were returning in the work-boat from Atlas Cove to the ship—the skipper had asked them aboard for breakfast. The bridge signal light focussed on the work-boat. A message flashed. Lambeth swung over, heading straight for the stranded barge. Rescue work was difficult in the heavy surf. Lambeth saw the L.C.V.P. was in a bad way on the rocky shore. At the second attempt he succeeded in pulling alongside the barge and getting a line aboard. He managed to pull the work-boat round in time to face a breaking wave. Throttle wide open, helm hard a-port, the nose of the work-boat hit the wave. The weight of water drove it under the surface. Hanging on grimly, the two men feared the boat would be swamped, but she rose groggily to the next wave, reached the crest before it broke, and won through by her speed. In his diary Jim wrote: "The work-boat was not answering the helm properly, but she did a great job. My heart was with her through that big broken wave."

By 11 a.m. next morning the wind had reached 70 m.p.h.

It was coming from the west, SW and WSW. Gusts drove clouds of spray up the beach. The men returned to the hut for shelter. Hail and snow pelted the roof. At 11.40 a.m. a sustained gust nearly carried away the hut. Inside the men felt the walls straining at the wire guys. They swore the hut was lifted off the ground. An hour passed, during which the wind moderated. When the men ventured outside during the lull the air was bitterly cold. Snow covered the ground. The first thing that drew their attention was the yellow Walrus plane. It lay on its side, rolled over a couple of times by the wind. They ran to the plane and started salvaging what equipment they could from the wreck. They removed the radio, instruments and tools. The plane was a ninety-five per cent wipe off. Both wings were damaged, the propeller smashed.

While the men worked on the plane, petrol from the smashed engine blew in their faces. A jeep trailer was filled with salvaged gear. Compton, returning to the hut, was seized by the wind. His feet were swept from under him. Executing a neat handspring, he saved himself from serious injury. A few minutes later "Doc" Gilchrist was blown off his feet. He was carrying a mass of log sheets and papers from the plane. As he fell to the ground, miraculously he retained a grip on the papers. Compton and Lambeth estimated the plane was wrecked when the sustained gust swept the cove. They said the wind speed was 125 m.p.h. The strongest was estimated by Lambeth at 150 m.p.h. Both men were considered sound judges of wind speed. The figures were accepted by the meteorologists as accurate estimates.

Campbell and Dovers fought their way round Atlas Cove in the afternoon from the Windy City camp, where conditions were not so good. Tents had been blown about. The men were without eating utensils. They enjoyed few of the comforts available at Admiralty hut. On arrival, Campbell and Dovers were given a royal feed of fried eggs, bacon fritters and toast.

"They had been troubled at Windy City by the high winds and snow," Lambeth recalled later. "Both men seemed very impressed with our set-up. I walked over the ground with Campbell. It was then he decided to erect the permanent camp near Admiralty hut."

The decision was welcome to the majority. It would have been necessary to transfer all equipment from Wharf Point to Windy City to establish a permanent camp there. It was a mile distant. This move alone would have added weeks to the construction time.

At 2 a.m. on December 22 Compton re-established radio contact with the landing ship and gave us the news of the plane wreck. A skiff damaged, the work-boat battered. The canvas awning gone, a foot of sand, gravel and snow in the bottom. The work-boat had been moored at a buoy in the lee of Wharf Point. A similar buoy had been left off Windy City. Concrete blocks—purloined at the last minute from Fremantle wharf—anchored the buoys.

As soon as the sea was calm, landing operations were resumed. Unloading proceeded by scows and pontoons, towed by the work-boat. The barges were both damaged and out of commission.

Work proceeded until 11 p.m. The shore party loaded the jeep trailers by the glare of the tractor headlights. When they went to bed the men had been on their feet for twenty-two hours. Abbottsmith, driving the tractor all day, was nearly asleep on his feet.

The following morning the landing ship beached once more at the tip of Wharf Point. Work started at first light. Pontoons were floated alongside the ship and loaded with hut parts. They were towed to the beach by the work-boat. Lines were run to the shore. Pontoons were towed right on to the beach and up the shore by the tractor. Fifty sailors were working on the beach at Atlas Cove, loading trailers,

roping cases, working round the camp site. Equipment came ashore at a fast pace all day.

There were many enlivening experiences. I remember one very heavy case in particular. Seven of us tried to lift it out of a scow. We tried to gain a leverage with crowbars. We tried a sling round the case. We tried everything, but could not shift it. Finally, in desperation, some one suggested: "Let's smash the bastard open!" We all agreed. Even with crowbars, the case was tough. When the top was smashed through, we looked inside and went livid—and the language! the case was full of dozens and dozens of iron tent pegs! All were useless, and could have been packed into small cases, easier to handle.

Norm Jones established a cook house in Admiralty hut. Instead of providing for fourteen members of the island party, an extra fifty sailors were clamouring for hot drinks.

"If I got threepence for every hot drink I'd served, I'd open up a business down here," he said.

Unloading continued on an all-out scale until Christmas Eve, when the landing ship beached for the third time. Once more we lugged cases again up the "Burma Road"—heaving, panting, lugging all day. The beach became a conglomeration of stores, food, drums, pipes, hut cases, all higgeldy-piggeldy. Everywhere men were working to finish the job by Christmas.

By Christmas Eve only fifty tons of cargo remained in the tank space. Compton and Lambeth moored the work-boat with a wire hawser to the buoy in Atlas Cove. The main job of the landing was nearly finished. Thankfully, the men rowed ashore in the dinghy. In Admiralty hut the men settled down with a contented air to eat a solid meal. They had no radio music, so they gathered round the chip heater, smoking, singing and yarning of home. In one corner the inevitable pack of cards appeared. Smoke from the heater filled the hut. It was too cold outside to open the door. The crackling fire and the hot meal, the waiting bunks. It was not

long before the men settled down. Few of them had had a full night's sleep since landing.

It was the first White Christmas for many of us on the landing ship. From the early hours of Christmas morning the snow was blowing hard. Anchored in the roadstead, the ship bore a rich new coat of white. Tinsel icicles ran down the stays from the funnel. Dull, leaded skies concealed the mountain tops, and the mist wreathed eerily above the slopes. The stony flat merged into the grey of the sky. Scurries of snow flew above the waters of the cove.

In the wardroom, as usual, the weather was being given a hammering. The chief engineer, Lt. Elvin, hit the nail on the head.

"Call this glamour!" he said. "All those people who talk about the glamour of a White Christmas should be shipped to Heard Island to see it for themselves!"

Ashore the Admiralty hut party was up early, singing carols and *Waltzing Matilda*. Work had to be done before breakfast. Stores and equipment had to be dragged higher up the beach, above the reach of the tide. Ivanac and Chamberlain, who had camped near Windy City, making magnetic observations, were brought by tractor to the hut for Christmas dinner, but it was not the lavish function of the wardroom.

There was a beer shortage. Seven men—and only two bottles! The men sat down to the best meal available. Each received a tin of sausages, a tinned Christmas pudding and a tin of apricots. They had hardly digested the meal before Abbottsmith, who had wandered outside for a walk, ran back to the hut yelling: "The work-boat's loose! She's heading for shallow water!"

This was the last of many adventures involving the work-boat. The inch and a half steel mooring cable had been snapped by the pull of the wind. The boat was being driven ashore farther round the cove. Everyone dashed out of the hut to save the boat; Christmas stories, half told, food forgotten in the rush to the beach. . . .

CHAPTER ELEVEN

FAREWELL TO FRIENDS

THE LAST of the equipment came ashore by scows and pontoons. A few incidents occurred in which scientific equipment was damaged. Two radio transmitter sections were dropped during the unloading, but the damage was not irreparable.

Up till the last minute the field members of the expedition had hoped the landing ship would be able to circumnavigate the island. Owing to the uncertainty of the weather, the project was abandoned. The L.S.T. steamed out of Atlas Cove in the late afternoon of December 28. The sturdy workboat had been taken aboard. Much as the expedition would have liked to keep the boat, there was no slipway on the island. We could not have hoped to keep the boat afloat through the winter. The landing ship rounded Rogers Head and blew a cock-a-doodle-do on her hooter. As the yellow superstructure disappeared from view, clouds above Big Ben Peak parted.

On the whole, the island was a depressing place. There was little beauty in the gaunt grey rocks, the barren flat and grim precipitous coastline. In the days to come the island's air of sullen harshness was to become all too familiar. But, despite all that, there was something of almost indefinable loveliness about it.

We saw it when we gazed across the bare stony flat from our growing camp. Dark clouds nearly always hid the lower ice slopes, but on rare magnificent days the clouds opened, to reveal the long white slopes, the rugged ice peaks tower-

ing into the air, the bare rock ridges, and, above everything, the silent white dome of the mountain.

The colours of Big Ben's dome were many. They varied with the time of day and with the weather. In the morning sunrise the great mountain was a heap of sparkling diamonds, reflecting flashing tints. When the sky behind the dome was the pale clear blue of the Antarctic, the beauty of the mountain was awesome.

When a full moon glinted round the ice slopes the dome shone like silver. At sunset, when the shadows flitted in long lines across the glaciers, the mountain top was a dome of gold.

Only the mountain was beautiful, sitting like a magnificent monarch ruling a starving kingdom. From his lofty throne, the mountain would peep through the clouds at his subjects, his castle securely surrounded by a moat of impassable crevasses.

Alone, stately and supreme. On clear days, when the sun was at its highest, we were to see the dome-like crystal against the blue sky, as though the mountain volcano had frozen and the lava turned to bubbling snow.

In the long months to come the mountain seemed to dominate our lives.

Campbell-Drury, Macey and I made ourselves comfortable in a tent at Wharf Point. Pegs, either steel or wooden, were useless. We tried burying "dead-men"—long timber planks—in the ground and lacing the tent guy-ropes round them. Stones and oil drums were then moved on top of the "dead-men," until the tent looked solid enough to withstand the fiercest gale. We moved in floorboards, beds and mattresses. We had sleeping bags and two blankets each.

A mess tent was erected alongside the Admiralty hut cook-house. The first meal in the mess tent was the quietest one we ate on the island. Conversation was totally lacking, we were all too tired and hungry to talk. Our appetites did full

justice to the braised steak and vegetables, grapefruit, jam and biscuits, and the unlimited cups of tea.

In our tent at Wharf Point we turned in to the tune of the barking seals. They were like dogs, yapping and squabbling. The seals lay in the surrounding tussocks. In the middle of the night I awoke, to hear a sneeze outside the tent. For a while I lay still, sure that my imagination was playing tricks with my ears. A few seconds later there was another sneeze. This time it seemed to come from the back of the tent. Another sneeze! Then a deep sigh, soft, strangely human. In a trice I was out of bed, untying the flaps. I ran round to the back. Stretched out beside the tent, with his nose thrust into a corner of the canvas, was a young seal sheltering from the wind. A few well-aimed stones made him slither off into the darkness. I hopped back into my sleeping bag.

From the tent flaps you could look across Atlas Cove to the scree slopes of Mt. Olsen, the first peak along Cape Laurens. The top half of the mountain was snow covered: great white slopes and valleys; tall, sharp aiguilles. A glacier cut the mountains down the middle, tumbling snow down to the sea. Behind the cove was the long desolate "flat."

In the morning life began for the majority when they heard Norm Jones singing out from the cookhouse at 7 a.m. "Right-o, it's on! Right-o, it's on, you fellows!"

There was a stampede from all directions. There was only room for seven people in the mess tent. Those arriving late ate their meals picnic fashion, astride the nummocks, or waited till there was a vacant seat. Generally they were too hungry to wait.

Tents and stores were retrieved from Windy City. Construction of the main base camp was put in hand. After three days the "met" section announced they had finished building the camp lavatory. Loud cheers greeted the news. It had been cold and uncomfortable the other way.

Four U.S. Signal Corps huts, complete with heaters, light fittings and shelves, had been brought to the island. Each hut had fourteen plywood sides, held together by nuts and bolts. The building gang struck trouble when they tried to erect the first American pre-fab. on a rock foundation. No one could find anything with which to attack the hard surface. No picks or hammers could be seen. A mattock, with a couple of heads, something like a miner's pick, was found among the stores. After much labour, Lambeth succeeded in making a workable tool. Later so many picks and handles were found there was no room to store them.

The first hut was new to the builders. All parts and sections were contained in five cases. All cases had to be opened first, so we would know something of the hut. However, construction was simplicity itself. Four days were taken to finish the first hut. The fourth one was built in half the time.

The first hut was for the radio and "met" sections. The walls were insulated. A light yellow colour inside gave a warm, comfortable atmosphere when we all congregated to celebrate the passing of 1947.

Sitting on boxes or packing cases, we opened bottles of beer and ate the other Christmas cake which Norm Jones had brought. The strain and work of the landing operations had been heavy. Muscles were stiff, joints creaked. Even Campbell, our leader, in excellent condition, had been slowed down by the drum rolling, until he remarked: "There's not too much brain here, but there's even less brawn now!" By 10 p.m. all were in bed. Lights were out. The darkened silent camp slept. The year 1948 came to Heard Island to the barking of seals and snores of weary men.

Electric power was connected to the "radio-met" hut from the 5 K.V.A. Diesel. A radio receiver was hooked up. After the evening meal we gathered to hear the first news broadcast from the outside world.

The Melbourne announcer's voice came in loud and clear:

"The exploration ship, *Wyatt Earp*, has met heavy seas south of Tasmania. A leak has developed in the plates, forcing the ship to return to Melbourne for examination and overhaul. . . ."

Campbell was not there to hear the broadcast. Some of the men rushed away to find him. At first he thought they were pulling his leg and refused to believe the story. *Wyatt Earp* was due to call at Heard Island in March or April to pick up the leader and take him back to Melbourne. The mishap to the ship meant that Campbell might have to spend the whole year on the island—unless special arrangements were made to pick him up.

At night a small celebration marked completion of the second pre-fab. We drank the champagne, a gift from the wardroom, toasted the captain, the officers and crew of the L.S.T.

Macey, Campbell-Drury and I had left the tent at Wharf Point. We now slept inside the "radio-met" hut. About 10 p.m. we were getting ready for bed, when I thought I heard a knock on the door. It was a gusty night. Assuming that anyone would enter without knocking, I disregarded the noise, putting it down to the door rattling in the wind. A few seconds later the door burst open. A bedraggled figure, wearing a Navy cap, appeared in the threshold.

No one in the hut moved. We stood speechless, paralysed, gazing at the pale, motionless figure in the doorway. Momentarily I thought I was seeing a ghost. My brain refused to accept what my eyes beheld. The intruder himself broke the spell: "I'm wet to the skin. Can you let me have some dry clothes?"

It was Dixon who stood before us. Water dripped off his figure to the floor. Ten minutes before we had been drinking his health, thinking he was already well on the way back to Australia. What had happened? I was confused and dazed. Macey was the first to recover. He rummaged in his kitbag for dry clothes. His example spurred me to action. I reached

for a whisky bottle, pouring a stiff nip. The captain seemed to appreciate the revive. While changing his clothes, he told his story.

The landing ship had arrived at Kerguelen Island the day after leaving Heard Island. Navigation round the coast had been difficult and dangerous, owing to the presence of mines laid in November, 1942, by H.M.A.S. *Australia* on the hunt for a German raider.

The captain had given the crew shore leave, their first recreation since leaving Melbourne. While moored alongside the old jetty of the whaling factory, radio messages about the mishap to the *Wyatt Earp* had been received. Dixon had been ordered back to Heard Island, and, if necessary, to return to Melbourne with Campbell.

Macey ran to Campbell's tent to tell him the news.

"Captain Dixon to see you, sir," he yelled from outside.

"Go to blazes, man! I'm tired. I'm halfway to bed." Campbell was sure this time it was a real leg-pull and it took more than Macey's tongue to convince him otherwise.

While Campbell studied official messages, Dixon enlarged on the delicious eating provided by the prolific ducks and rabbits at Kerguelen. The captain himself shot eight birds. "You couldn't miss. There was a great cloud of ducks," he said.

Time had not permitted the captain to stay longer at Kerguelen. He had recalled the crew and left at once on the return trip to Atlas Cove. Immediately upon anchoring in the roadstead, the captain had left the ship in an L.C.V.P. to deliver the official messages to Campbell. Stepping off the bow ramp in the dark, the skipper misjudged the depth of water, stumbled and plunged into the water! Those L.C.V.P.'s again! We fitted out the captain with a dry rig and he returned to the landing ship.

Heavy snow was falling next morning, but a party came from the ship to visit us. At night we gathered in the "radio-

met" shack. A rum ration was issued. We sat on beds and boxes, while Campbell, back to the transmitter, spoke in his quiet voice.

"Things have not gone exactly as we expected," said the leader. "The *Wyatt Earp's* returning to Melbourne and is unlikely to call here now. I didn't want to leave you while the camp was being built; in fact, I'd have been happy staying the whole twelve months down here. However, this is not the only side of the expedition. There's the Macquarie Island party to get away, and it's more important for me to return to Melbourne to see them." Campbell handed over to Gotley, the senior meteorologist.

On Sunday, January 4, the next morning, save for an extra hour sneaked in bed, the building work continued without let up. I was covering the panel section joints on the roof of the fourth American pre-fab. when Keith York shouted: "The barge's here for Campbell!"

We stopped work and raced the quarter of a mile down to the beach. Alf Hayter was in the barge. Would we ever forget him? His genial, "Now, lads, just one more heave!" was the right encouragement for the sailors and expedition men toiling on the beach. The picture of Alf, cap askew, wind jacket open to the elements, balancing like a Canadian lumber jack on the pontoons and floating hut parts, was something we could carry in our minds whenever his name was mentioned. That was our last sight of him as the pontoon was towed back to the landing ship. Good lads all!

Till the end the L.C.V.P.'s continued their pranks. While scrambling off a seaman's shoulders to the barge ramp, Campbell fell into the water.

The fourteen of us gathered near the tractor on the gravel-like sand, our boots squelching in the mud. Out in the cove the speeding yellow barge headed towards the bigger ship, whose funnel was just visible above the tussock clumps. Aboard the barge, Campbell waved goodbye. He continued

waving until he disappeared from sight round the rock promontory of Wharf Point.

There was a pause of a few minutes while we gazed at the yellow superstructure above the hummocks. The silence was broken by a blast from the ship's siren.

"Whoop, whoooooop, whooooooop!"

Birds flew off in fright at the unaccustomed noise, which echoed and re-echoed off the mountainous cliffs flanking the western side of the roadstead. As the ship cleared the island, the noise of the hooter began to die. Finally there was no answer off the cliffs. We stood staring out to sea long after the ship had vanished. We were alone. My companions were silent, each occupied with his own thoughts. Finally we turned away in twos and threes, plodding over the bone-studded beach to the partly erected huts.

CHAPTER TWELVE

THE "BASHER GANG"

WE WERE a tired but cheerful party, an expedition of fourteen men, whose ages ranged from twenty-one to forty. We were a ragged bunch with dirty faces—faces with beards, faces with stubble grown in the three weeks since we had sighted the island: cold faces in a freezing wind.

Some of the men wore camouflaged smocks with hoods for protection against the cold. Others were in submarine jackets, trousers and woollen balaclavas. The peeping sun gave little warmth, but the snow was thawing under its weak power. It lay thinly over the dark ground and the green-topped azure hummocks. It had left a glistening shine on the roofs of the newly erected huts, where we were building the camp.

On the beach lay the broken wreck of the Walrus plane, a yellow twisted mass, bright against the white background of snow. The sun's rays glinted on the white volcanic hills ringing Atlas Cove. On the long broad flat to the other side of the island the wind raised clouds of dust and snow particles.

Piles of equipment, cases and oil drums were strewn along the beach front for two hundred yards. There seemed to be cases everywhere. Oil drums, dozens and dozens of them, lay above the water's edge. A few drums lay where the water still lapped them, as though they had been floated ashore with the last high tide.

The water, now calm, lapped the fuselage of the wrecked plane. One engine was already half covered by blown-up drift sand.

The skuas and sea birds circled and dived low above our

heads. Already we had erected three huts, the walls, floors, roofs and doors being extracted from big packing cases. The tents, where we had spent the first nights ashore, stood flapping in the wind. It was hard for me to realise that, instead of watching an adventure story, from the ease and safety of a cinema seat, I was now taking part in one. My rôle was only a supporting one, but the cast included a galaxy of scientists, explorers and technicians. Six months before I had not known such an island existed. If my friends on the paper could have seen me as I walked back with my companions they would have found my present circumstances were, to put it mildly, slightly different.

My heavy military boots, windproof camouflage trousers and submarine jacket were not the garb of city streets. Gone with a vengeance were the gay ties, the freshly pressed pants and the clean shirts of civilisation. And good riddance to them too, I thought!

Gone, too, was the happy jingle of loose change in the pockets, for, thank goodness, money on this island was a useless commodity. Rich man's son or poor man's son, all were equal here. A lump of string and a sharp knife were worth more than a five-pound note!

Theoretically we would appear to be a perfect democratic society. Economists and political thinkers might draw great theories or conclusions from our behaviour during the long period of isolation. We all had food and jobs. We would be short of nothing vital to ordinary existence. Yet, even then, I knew we were fourteen different individuals with personalities of our own.

I began to wonder how we would be at the end of twelve months. Now it was the man who knew carpentry or joinery, the man who could tinker with motors; he was the useful citizen of our small community.

My claim to inclusion in the party rested on no such skill. If it had been possible to classify the utility value of each man to the expedition at that stage of our development, I

would not have been disappointed to find my name well down on the list. Unfortunately, I possessed little of the skill necessary in the pioneer, but already, in our short period ashore, I had the consolation of knowing I was not alone in this regard. . . .

A pile of elephant seals lay in our path as we walked past the litter of food cases. The seals had been lying there since the day we landed. Not a single tree or shrub was visible in the dreary landscape ahead. It was a desolate expanse of stones, boulders and gravel. Snow patches covered the ground like white sheets. The only relief came from the green tussocks ringing the camp area.

A team searching scattered stores and equipment strewn along the beach located the piano and radiogram. Abbott-Smith drove the tractor to the spot. The cases were loaded on the trailing sledge. Bouncing and rocking over stones, the tractor drew up outside the newly completed recreation hut. After manoeuvring both ends, the awkward piano was passed through the hut door at an angle of 45 degrees. The radiogram presented no difficulty.

We were determined to celebrate our first night of isolation in royal style. We had been working hard all day on construction. The fourth American pre-fab. had been completed, so we settled down to relax for the evening.

"Swampy" Compton had shot another big elephant seal with his 22 rifle. Stripping the carcase, he threw the blubber strips into a large pot. Many old pots, shaped like those used by cannibals to fry missionaries—in the cartoons at any rate—lay buried under sand and gravel near the camp. Sealers had used them for boiling down blubber. Inside the pots we found many small penguin bones. Lighting a fire under the pot, Compton boiled the blubber. Heavy clouds of foul-smelling smoke enveloped him. Daring the jibes of spectators, he threw more blubber into the pot, brewing a wicked looking concoction. By this time his audience had been re-

duced to a horde of voracious "stinkers" and skuas. Squatting on surrounding hummocks, they watched his activities with avid interest. Now in the evening, "Swampy" reviewed the results of his sealing experiments.

The coming year, he contended, could be spent more profitably in the sealing business than in the field of exploration. With the price of seal oil at £40 a ton—if it was—and with the assistance of all hands, profits would be worth taking home. Only two snags marred the plan—lack of willing labour and the difficulty in smuggling home the oil drums!

On the voyage we had read all we could of the Antarctic animals and birds. It was not long before we realised that much of this information did not apply to the fauna at Heard Island. One idea, common to several books, was that elephant seals were myopic. Our experience was quite contrary. A hundred yards off, the seals would spot you. They raised their heads above the green mounds and followed your approach. If you drew really close they raised their heads as high as possible, lifting their heads and forebodies back on their flippers. This was the sparring position they adopted when fighting over the cows. Some bulls stood nine feet high when they reared up.

The bulls faced up to each other, heads, necks and forebodies strained upright. Belching and roaring, swaying backwards and sideways like giant cobras, they waited their chance to strike. When they lunged, they aimed for their opponent's neck.

When we arrived on the island the young seals were still to be seen. The smallest was four and a half feet. They had no teeth and had not developed the disgusting belch of the older seals. When you approached, the young ones opened their small mouths and sighed deeply.

"Lem" Macey developed what we called his "lion-taming" act. He would crouch on his knees before the small seals, on the theory that, if he appeared to the seals to be no taller than them, they would not rear up their heads in fear of at-

tack. By stroking a seal under the chin, he would coax its mouth down into his gloved hand. The seals would be content to go to sleep in this position. The young had smooth, soft coats, and big, wondering, saucer-like eyes. All the seals had limpid eyes, possibly to help them see under water. Young bulls were the fiercest. Often they attempted to follow us, but, of course, they were slow and cumbersome on the ground. If hit on the back by a stone, a young bull would rear up his head and tail, forming a perfect U shape. It may seem cruel to throw stones at seals, but it was the only way to make them move to another part of the beach or away from the camp. After a pile of seals had been lying on the same spot week after week, the smell was overpowering. Nearly helpless against attack, seals have only two ways of replying. They can roll their great weight on top of an opponent or they can bite, and a bite from a big bull would be no joke! Macey found a young seal sheltering near the drums at Wharf Point. Day after day he visited the animal, who put his mouth on Macey's bent knee and went to sleep! One morning the pup had gone, vanished as mysteriously as he had arrived. It was hard to realise that next year the young ones would be dangerous bulls, and in a few years more, grossly fat and obscene. Smaller seals were often loath to enter the water. On stormy days, when the larger seals were revelling in the breakers, the young ones would be reluctant to leave the shore. Perhaps, as with humans, only experience and strength enabled them to master the surf.

But, to return to the celebration in the "rec" hut, Comp-ton's views on sealing were forgotten in song and music. A collection of 150 records, from the classics to boogie-woogie, was there to be played. Sitting in gaily striped deck chairs, which would have been more at home on the verandah of a beach hotel, we relaxed in warmth and comfort.

We had so much work to do building the camp that for the time being scientific work had to take second place. A squad

had been busy on the huts since December 27. Everyone took a turn at this job, though the more regular members of the squad were Dovers, Jacka, Jelbart, Compton and myself.

As each hut was finished, the men left their tents and moved into the new dwellings. Work with the building gang was pleasant in early January. It was sunnier than December. Climbing ladders, belting in nails with a claw hammer, and turning to gaze at the snow-topped mountains and glaciers was a novel experience for me. The air was cold and fresh, but it did not require much work to keep one warm.

Originally the American pre-fabs. were destined for Alaska. Due to a wartime shipping mistake, they were sent to Brisbane. They had been lying in a stores depôt for three years before the expedition purchased them. When this story was told in the mess tent one evening, Macey cracked back: "Well, God help the poor Yanks in Alaska, if they got four Australian pre-fabs. instead." The remark nearly brought the canvas down on our heads. By comparison the Australian huts were very inferior.

Made of masonite and hardwood, the Australian huts were designed to serve as station buildings for the R.A.A.F. in New Guinea. Although simple enough to assemble, unfortunately many sections were damaged during the landing. By using innumerable nails and fashioning new joints, all huts except one were finally erected.

Weeks spent on hut construction had their humorous moments. When one section was bolted in position, inevitably a corresponding bulge would appear in the opposite direction on the other side of the hut. Roof sections did not fit. We had to lay them close together, squeezing the whole roof with a sash clamp. Bolt holes did not correspond with their opposite numbers on neighbouring panels. The bush carpenters bored new holes, through which bolts could be hammered. By use of long bolts and many washers, difficulties were overcome. Some measure of rigidity was obtained

for the improvised structures. Timber was used to bolster up weak sections.

Procedure for laying out a hut site was simple. Johnny Abbottsmith would 'doze down the tussock clumps with the tractor. Then, while we laid foundation blocks, Bob Dovers would bring his theodolite into play. With the site levelled off, construction began. Because of the hammering necessary to reinforce the huts, the building squad became known as the "Basher Gang." The gang's chief fame rested on their use of a favourite weapon, "the persuader"—a six-pound hammer to drive home recalcitrant bolts.

Australian pre-fabs. took an average of five days to construct. Building went on through snow and hail. We knocked off work when the wind blew so strong that there was a danger of a half-completed structure being scattered far and wide. This happened only once—during a gale in the first month.

Panel sections of the Australian pre-fabs. were fitted with opening flaps at the top and bottom. Hot tropic nights would be cooled by the soothing breezes. However, a hut with twelve window flaps needed some modification in the Antarctic. When a hut was finished, one man would travel round the outside, nailing up the flaps. Another man would do the same job inside.

When the question of working on the roof sections arose I preferred to let the lightweights, Fred Jacka and Bob Dovers, perform the necessary hammer work on top. As soon as a hut was completed, the roof would be secured with wire guys. Then we moved on to the next site. We realised the sooner the camp was built, the earlier we would be ready to start our particular jobs. Food and shelter were the prime considerations. Keith York and Johnny Abbottsmith erected the powerhouse and workshop, two Australian pre-fabs., back to back. To complete the work, Johnny sat on the roof while it was bolted together beneath him. Displaying the skill of an expert carpenter, Jim Lambeth was employed on

specialist jobs, construction of verandahs and porches. Other huts were for the cookhouse and emergency powerhouse. A balloon-filling hut was built for the "met" section. Two store huts were for the spare clothing, bedding, hard rations and equipment still on the beach. These huts were reinforced on the outside with malthoid. All these huts were the same, sixteen feet long, twelve wide, and a gabled roof, nine feet from the ground.

The balloon-filling hut was a triumph of improvisation. When building began not a single panel was undamaged. Buttressing the interior, reinforcing panel members, and with a fervent belief in our lucky star, the building was finished. What's more, it stood up too! To allow balloons to be released, one end had to be taken out of the hut. Fearfully the builders watched the extraction, expecting the structure to collapse like a house of cards, but still it remained standing! A folding door was fitted for the release entrance. Sheltered by high tussock, abeam to the prevailing wind, the hut stood its ground, a testament to the handiwork of the "Basher Gang." Four smaller huts, nine feet by nine feet, were in better condition. Used by the R.A.A.F. as H.F./D.F. huts, the building gang was in good form when they came to build these. We ran them up in two days each. Using an electric drill to bore bolt holes in the panels, we fitted sections together. These structures were for emergency radio, survey, cosmic ray and bath huts.

Four seventy feet high masts were to be erected in rhombic pattern for the transmitting aerials. Made of light steel, the masts fitted telescopically section by section. They were designed to withstand a wind of 130 m.p.h.

Macey and Campbell-Drury began work on the first mast. Rocky ground near the camp blunted picks and crowbars, but foundations for the masts had to be made. The men tried blasting the rock with gelignite, but the results were disappointing. The blast did not penetrate the ground. Then Macey hit on a good idea. He decided to build anchorages

above the ground, using empty oil drums filled with stones and gravel.

Much physical effort was required to bash in the tops of the oil drums. We had no suitable cutting tools. You stood on the top of the drum and slaved away with the pick. Each blow on the drum top made just a small dent, but the noise was like a great bell being tolled. It left the striker deafened, and quivering like a jelly from the concussion of the blow. You felt as helpless as a cockroach trying to open a jam tin with a safety pin. Still the work went on. As one man tired, another relieved him on the pick. Slowly and laboriously we worked through the lids of the drums, then filled them with stones. After two weeks of this exhausting labour, in which pick after pick was blunted, Bob Dovers tried blowing the drum tops off with cortex explosive. His effort was astonishingly successful. The cortex was packed round the drum tops with stones. After the explosion the tops lay, twisted and bent, in the bottom of the drums, as though a giant tin-opener had been at work. The work of a week had been done in seconds! Later we used snow to freeze the cortex to the drum tops.

Four-drum anchorages were built, four anchorages to the mast. The first mast was hoisted during a fine spell in mid-January, when the noon temperature rose to 47 degrees Fahrenheit, the warmest day in 1948. A jury mast was rigged, a cable line run to the tractor. Macey gave a hand signal and Abbottsmith drove slowly ahead. Sighs of relief went up from the assembled party when the tall mast remained vertical.

Along Cape Laurens the mountain peaks were visible beneath blue skies. Mt. Olsen, the nearest to base camp, showed her fine white table top. It was a great day. At night the temperature fell below freezing.

The rigidity of the new mast was soon tested. I awoke at 2 a.m. to hear a continuous moaning outside the hut. It was

no Antarctic ghost, but a 60 m.p.h. wind blowing through the perforated radio mast. The unusual sound woke my two hut companions, Macey and Campbell-Drury. As the wind rose with the crescendo of a gust, the mast reverberated like a giant organ. "Boooooom, boooooooooom, boooooooooooooom." It was a sustained note. Through the year we came to recognise the notes of the mast. When the note was a long deep one, we were sure the gusts were cracking 75 m.p.h. This cyclone continued throughout the next day, halting all outside work. At night the wind reached hurricane force, one gust topping 90 m.p.h., shaking and rattling the huts.

Gotley watched the walls of his hut bulge inwards. Twice Compton felt the floor of his hut lift up. Stove chimneys were blown for yards. Tarpaulins covering the stores were torn. The two tents at Wharf Point took the strain. Sections of one Australian pre-fab. were scattered across the hummocks, but, fortunately, the whole damage to the camp was negligible.

The cyclone served as a warning. The next two days were spent on consolidation of the buildings already erected. To prevent gusts whipping underneath the hut floors and somersaulting the structures, we built low barricades of stones round the outside walls. Even this work was interrupted. On January 17, when we experienced our second cyclone, another gust of 80 m.p.h. swept the camp. Masts and huts again stood firm. More roofs were anchored down with wire guys to stone-filled drums. Wire cables were run lengthwise over the roofs of the Australian pre-fabs.

When gales blew in from the W or SW, great spray clouds moved across Atlas Cove towards camp. Willie-willies travelled along the side of Cape Laurens and into the cove. When they hit the flat shore, whirls of dust, sand and lava gravel rose in the air. Dust clouds obscured the flat. You could not work or walk outside without face goggles. The dirt was blinding. That's how we came to call the flat the "Nullabor."

There were days when we had the unusual spectacle of snow and dust storms together—snow from the clouds, dust from the ground.

Heaviest work was the retrieval of the drums released from the landing ship in mid-stream. Few drums were damaged, but many floated ashore at inaccessible points at the base of steep cliffs. Bearing in mind the experience of the "Burma Road," we made sets of double-tracked runners. Laid in a long line over the rocks, most of the drums could be reached and rolled back over the runners. A party of six men took two days to move thirty drums over three hundred yards of rocks and stones to Wharf Point dump.

Many drums were battered to a square shape by pounding against the rocks, and would not roll. This made the work five times harder. Battered drums were pushed and shoved over the runners the best way possible. My feet felt like hot bricks, even when it was snowing. Stones and rocks gave no support to boots. We stumbled and floundered until the work was finished. Abbottsmith, with York and Carroll, used the tractor to retrieve drums round the beach. We were all played out at the end. Never were such sighs of relief heard when we pulled off our boots at bedtime! We were like a crowd of women after a bargain-sale. "Oh, my poor feet!" was the cry from all sides of the hut.

An early and lasting problem was the provision of fresh water. A spring within a hundred yards of camp was examined by "Doc" Gilchrist, but he pronounced the water brackish. However, we could use the spring for washing. Baths were few during the first weeks ashore. The procedure was to take a metal basin to the cookhouse and beg for three inches of hot water. If successful, the trick was to make the water last for the whole bath. It was easy to wash face, hands and chest. To complete the toilet, you took off your socks and pants and stood in the basin. By this time the colour of

the water was nobody's business, but the relief, after so many days without washing, was a tonic for the whole body.

Water for the cookhouse was brought from the Baudissin Glacier. Two steel tanks, or "Furphies," were loaded on an empty generator trailer and towed by the tractor. Lengths of pipe were carried to run water direct from the glacier to the tanks. Even when we had installed catchment tanks, we still had to take the tractor for the water. The camp tanks froze solid.

In January the snowline retreated in the fine weather. Frozen drifts thawed. Moraine hillocks lay bare and grey. Fresh meat had been buried in the snowdrifts behind Windy City camp. Because of the summer thaw, it had to be shifted to another cache.

Moving the meat to the Baudissin Glacier was a heavy task. "Doc" Gilchrist dug an ice-hole three hundred feet up from the flat. It was a thirty-degree slope. Walking on slippery ice in military boots was a tricky business. Carrying a sixty-pound sack of meat over your shoulder was almost the straw which broke the camel's back. We trudged up the slope and down again all morning. When it was over, I personally did not care if I never saw another piece of meat!

The "Doc," as messing officer, thereafter made daily trips to the glacier to bring fresh meat to the camp-builders. Trundling a bicycle-wheeled mail cart over the "Nullabor" to the ice-hole, he was invariably followed on the return journey by a hovering flight of skuas. Painstaking as were the "Doc's" efforts, the weather beat him. The glacier was not cold enough to keep the meat fresh. Mould set in, and the cache was abandoned to the creatures of the air.

While involved in transport operations, the tractor became bogged in a quicksand in the middle of the "Nullabor." The treads sank into the gluey trap. Mud oozed and splashed round the skidding tracks. The presence of mind of the driver saved the vehicle from serious damage.

Abbottsmith was quick to realise the position. He immediately turned on full throttle. The treads responded before they could sink lower in the trap. Slowly the tractor moved to firmer ground. With three-quarters of the stores still on the beach, a mishap to the tractor would have added enormously to the difficulty of establishing the camp. How could we have dragged up the heavy fibro sheets, iron, cement, masts and other equipment? We were completely dependent on the tractor.

The tractor road to Windy City was smooth, except at the far end, where there were many rocks and stones. "Doc" Gilchrist took his motor cycle out for a trial spin. One venture was sufficient. Rough-riding over the stones, the "Doc" failed to maintain his grip and dived over the handle-bars. Persistent, undaunted, he remounted the machine, but the second ride was even shorter. The "Doc" shot over the handle-bars again. The machine was discreetly wheeled back to camp and hidden under a tarpaulin. Thereafter the subject of the motor-cycle was a risky topic, being mentioned only in hushed asides!

In the failing evening light, Macey and Abbottsmith drove the tractor to Windy City. Macey was standing on the guard-rail. Suddenly the machine jolted, nearly pitching him to the ground. Abbottsmith braked. The men dismounted, returning to inspect the obstruction. It was not a pleasant sight! They had run right over a sleeping sea leopard. When they passed the spot an hour later on their return, the scavenger birds had already begun their dreadful work.

I'll never forget my first tractor trip round the beach to Windy City. The novelty made the excursion most interesting. Carroll was driving a working party over there. I was in the jeep trailer, being towed, along with sundry picks and shovels. Carroll took the route near the water, where the beach was firmest. The approaching roar of the tractor had an extraordinary effect on the birds and animals. The seals gazed in complete and utter amazement. As we drew right

near, they shuffled off as fast as their flippers would take them. When we had passed them, they returned to their former heaps, as though nothing had happened. The tractor might have been a thousand miles away for all they remembered!

Stinker petrels were picking at the sea leopard carcase further round the beach. They spread out their wings and attempted to take off, with disgusting consequences. The "Nellies" did not understand that the tractor moved in a straight line. They wobbled along the beach for hundreds of yards, keeping just ahead of the machine. They never tried to deviate, but wobbled blindly forward, beating their half-extended wings.

The first sea leopards we saw opened their jaws at the tractor's approach. Their teeth are longer and more vicious than the elephant seals. At first it seemed the leopards might attempt to attack or bite at the tractor, but they shuffled off into the water. Later we found the leopards were timid creatures ashore, invariably making for the water when we approached. Seldom did they lie more than thirty yards up the beach. They move over the ground with a caterpillar-like action. The leopards became bogged in damp snow and slush. On hard icy ground they travelled quickly. They live on penguins and small fish. Superb swimmers, thrashing their bodies and flippers with the force of a whirring propeller, they would slide into the water and travel for sixty yards before coming to the surface for air.

The reaction of the penguins to the tractor was comic. Once I saw seven penguins wobbling along the beach to where Abbottsmith had left the machine unattended. They stood a few yards off, motionless, gazing curiously at the panting tractor. When Abbottsmith climbed aboard to put the machine in gear, the penguins sheered off in fright. They waddled blindly ahead of the tractor like the "Nellies." Waving their flippers in the air, they raced forward, never attempting to enter the water nor make for the higher

ground. The leading penguin was a real clown. He moved along by hopping in small strides, like a miniature kangaroo. I learned from my companions that he was a rockhopper penguin. Before joining the expedition I had heard of emperor penguins, and knew that we would not see any at Heard Island. The penguins at Wharf Point had looked exactly as I had anticipated. It was only when I saw the little rockhopper jumping ahead of the tractor that I realised there were other types of penguins. Rockhoppers were the smallest. Only about twelve inches high, they were the funniest to watch in the rookeries. They have a pale yellow crest above each eye. It is quite long and droops at the end. During the hatching season the rockhoppers were vicious. Lt.-Commander Dixon, before he left, went ashore one day to visit the Rogers Head rookery. Later he appeared in the ward-room with a large tear in his pants! The small penguins, resenting his intrusion into their domestic life, pecked his trouser cuffs. When the skipper bent down to fend them off with his gloved hands, one rockhopper, more daring than the rest, stretched his neck to its full length, ripping the seat of the captain's pants.

The only characteristic common to the penguin breeds is that they all have white shirts and black backs. The gentoos at Wharf Point had a white border round the back edge of their flippers. There were two white patches near their eyes, joined by a white band across the top of their heads. The gentoos are about two feet high. Gentoo stragglers were round the island all the year.

Macaroni penguins had a bigger rookery than the rockhoppers at Rogers Head. They are stouter than the gentoos, and have a deep orange crest sprouting above each eye. The crests lie flat against their heads.

Largest penguins we saw were the kings. Only appearing in small numbers, some king penguins were three feet tall. Two of our party saw a king walking along the beach during

the first weeks. He was so tame, the men walked him back to the camp, each holding a flipper. They thought the bird looked ill and feared the skuas might find him. The king was the tamest of the tame. We could scratch his neck and rub his chest. He never complained. We offered him sardines, but he seemed more interested in watching what was happening round the camp. After a tour of the buildings, he wandered back to his familiar beach. The kings have a yellow or orange patch running down each side of their head from behind the eyes to the collar. King chicks, which we saw later in the year at SW Bay, were an inch or two taller than their parents. They were all fluff and very awkward. The parents protected the chicks and pushed them along with their flippers when we approached. Normally they moved in Indian file.

Adele and ring penguins were seen only in small numbers and at infrequent intervals. The first have all-black heads, except for a tiny white patch round their eyes. The latter have a large oval-shaped white patch over each eye and a distinct white collar round the necks. Macaronis were most numerous on the island. Often you would see penguins on the beach, reluctant to enter the sea. They would try to coax each other to be first in the water. They feared a lurking sea leopard.

An old sealers' hut stood in Corinthian or Whisky Bay, as the first-comers to the island had called it. I went over to examine the hut one Sunday afternoon with York, Carroll and Abbottsmith. Surrounded by a roof-high stone barricade, the hut was on rocky ground at the northern end of the three-quarter-mile beach. Traces of the sealers were still to be seen, in rusted iron hoops and boiling-down pots near the hut. We picked up an assortment of cartridge cases round about. Some had German and American markings. Seals had enjoyed unimpeded access to the hut for years. Inside the

smell was nauseating. An old kettle and cutlery, as well as an unused stove, were found in the accumulated snow and gravel.

As the base camp grew bigger, we were confronted with a shortage of building materials. To complete an annexe for a medical centre, alongside Admiralty hut, "Doc" Gilchrist dismantled the sealers' hut. Unbolting the wooden beams and corrugated iron sheets, he came across a manufacturer's brand, "Emu . . ." The stamped metal was indecipherable.

An unusual aspect of the old sealers' hut was the lack of evidence that it had ever been occupied. There was no chimney for the stove; no hole in the roof to let the smoke escape. No beams were smoke burnt. No bunks or sign of permanent occupation within. Who had built the hut? When? We could only assume that it had been used as a store. Judging by its state of preservation, we considered that it was not one of the original huts.

As the week passed, so the base camp grew. Powerhouse and workshop were completed near the "radio-met" shack. Two American pre-fabs. were connected by a verandah. Jim Lambeth began constructing double-tiered bunks.

Before leaving Melbourne, Compton, Campbell-Drury and Macey had each bought a British type of attache-case transmitter, designed during the war for the European "underground." They cost ten pounds each, and were just the thing for radio enthusiasts. Now, with their "ham" sets above their bunks, the enthusiasts would span the ether with their five-watts output searching for contacts. Competition to make first contact with the outside world was very keen. Towards the end of January Alan Campbell-Drury contacted an amateur in Western Australia. His news caused some amusement. In Perth, W.A., the temperature was 105 degrees. At Heard Island it was 32 degrees.

CHAPTER THIRTEEN

WEATHER STATION

TWICE in January Big Ben's dome was clear of the clouds. The second time was the best. There was a cool nip in the air that day. The sky was deep blue, cloudless. Fresh snowfalls had formed new ridges and ravines round the rocky ribs leading from the dome. Through field glasses you could see immense white caverns, deep and mysterious. The snow was white and glaring. It dazzled the eyes and made you blink. The barren, desolate "Nullabor," running from the camp to the moraine hillocks at the base of the great mountain, accentuated the height and magnificence of the dome; like an untidy, neglected drive leading to a stately mansion.

Crevasses were visible on the mountain side to a height of 7000 feet. Some crevasses in the Baudissin Glacier were a mile long, deep gashes in the white slopes; long cuts and ridges. Above the sea the glacier was a blue wall, one hundred feet of ice. On such a day, with the transparent air, the bright sun and the blue skies, the mountain seemed much nearer, but it was still eight miles off. From base camp we could hear the noise of falling avalanches four or five miles away. The rumbling continued for several seconds. Sounds travel far in still, clear air. The rumblings were often heard from along Cape Laurens when the snow was thawing.

We made such progress with camp construction that eventually we were allowed Sundays free, for recreation purposes. Most of us spent the first one lying in bed long after the normal hour of rising. It was our first holiday since leaving Melbourne. Norm Jones had a chance to get away from the cookhouse for twenty-four hours. He had been working from 6 a.m. to 7.30 p.m. daily, providing meals for the hungry

camp-builders. We had a roster now for Sunday duties and Bob Dovers was the first to relieve. He was soon in strife though with the backfiring kerosene stove. Before the day was done, he expressed his views forcibly:

"I wouldn't have this rotten job for £2000 a year."

Others on their first day off spent the time washing clothes and tidying personal gear. Some went for walks round the beaches. Generally, we did just what we liked.

The lights were extinguished round the camp at 9.30 p.m. during the construction period. Most of us were in bed by 8 p.m., tired out from the open-air work. Lying in bed, you could hear the strange moaning noise as the wind played round the masts and guys. Lead-in wires hit the hut walls, even on windless nights. For days this was a mystery, until Campbell-Drury saw a bird fly into the wire and fall to the ground. When we searched we found a few bodies of the small "whale" birds, which only ventured out at night.

A succession of cyclones swept the camp. These, we were to discover, were likely to be experienced all the year. Cyclones rendered outside work an impossibility. In the summer, driving rain accompanied the winds, which flew round the huts at express train speed. Progress round the camp was difficult. You slid, slipped and sat down in mud pools and streams. One day the wind would bring great dust storms; next day it would bring snow or rain, according to the temperature. In the summer the snow only remained on the ground for a few hours. During such days we found jobs to do inside the huts, fixing shelves, cupboards, floors and lining pre-fabs. with insulwool and silver paper. I offered my services as librarian. We had two hundred and fifty assorted volumes and a full set of the *Encyclopaedia Britannica*, the latter authority being used to settle many an after-meal argument. Other amenities and the library were installed in the rec. hut. We had chess, draughts, dice, crib, cards, Chinese checkers, dominoes and an advanced form of snakes and ladders, which we never really understood. The Heard Island

Post Office sign, presented to Campbell by the crew of the landing ship, adorned the rec. hut walls. The sign read:

HEARD ISLAND POST AND TELEGRAPH OFFICE.

Open daily, 0900 to 1800, Xmas Day and Sundays excepted.

The nearest phone booth is at the corner of Mitchell St. and Basselton Rd., Fremantle, W.A.

2400 miles away.

Other souvenirs of our voyage, maps, a calendar and a small red sail completed the decorations in the hut.

The mess tent, which had withstood the strain of storm and wind for weeks, was in a parlous condition. No regrets were felt when we transferred to the rec. hut for meals. We were tired of the canvas flapping against our heads when drinking soup; of the mad scramble for seats; of the dust and gravel blowing over the plates. There was no bun rush in the rec. hut. We queued up for meals in a more or less orderly fashion at the cookhouse servery. Later we had such refinements as tablecloths and chinaware.

After work one day I strolled over the tussock to the gentoo rookery near Rogers Head. I must have passed by a skua's nest, for one of these birds began swooping above my head, then flying away in a wide circle. All the time the bird was making harsh, urgent cries. Then he would swoop down within inches of my balaclava. I had to beat him off by waving my woollen cap and throwing stones in the air.

I was still a long way from the rookery when the din of thousands of squawking birds reached my ears. The tumult was rising and falling, like far-off enthusiasts at a football match: "Kar, kar, karrrrrrrrrr. . . ." Innumerable beaks pointing to the sky, cawing at each other; chicks nagging for food. The noise came from everywhere.

Compared to rookeries we found later, this one was small,

but it was the first I had seen. The antics and behaviour of the birds were fascinating, an animated cartoon come to life. I sat on a hummock to watch the goings-on. The chicks were ungainly fluffy balls, awkward, gangling, falling over. Squabbling among the penguins, I noticed, was widely practised. Each family had its own little backyard in the rookery. Woe betide any bounder who threatened the inviolability of his neighbour's castle! He received short shrift. Vicious pecks from all the birds around; others came to shoo him off. More pecks, and then a hasty retreat. It was going on all the while. Two birds came to inspect my boots. If I moved my feet, they would move too. If I followed them, they attempted to escape, travelling over the ground on their stomachs, using their flippers like a tortoise at high speed. When cornered, the gentoo shows no fear. He stands straight up beside the tallest man. Pushing his beak in the air, he airs his protest. At such moments a penguin makes noises like the whimpering of a whipped puppy. Instinctively you look round for a dog. It seems so strange that such a sound should come from a bird. As it becomes apparent that you mean no harm to the penguin, he begins to look you over with curiosity, peril forgotten. All thought of escape has left his mind.

The penguins are not all glamour. Like other Antarctic natives, they seem to have no sense of smell. They live and nest in surroundings of their own white guano.

The men moved into the permanent sleeping huts, seven bunks to a hut. There was one hut for the watchkeepers, the three radio men, the "met" staff and the engineer, and the rest were in the other hut.

The "met" staff moved in to occupy their half of the "radio-met" shack, the nerve-centre of the camp. They moved in instruments, maps, desks, reference books and equipment.

Dovers and Jacka made the farthest excursion away from

the camp, crossing half-way over the Schmidt Glacier from SW Bay. They used crampons and were roped together. Most of the crevasses were snow-bridged. It was a day away from the routine of knocking up huts, but Dovers had his own eyes open—looking for a path down the west coast to Spit Bay.

The route across the Schmidt Glacier to Long Beach was the only way down the west coast. Whether our survey party would be able to cross all glaciers on the route and reach Spit Bay was something we did not know. It was only by small excursion parties making different journeys over the ice that the best route would be found. The alternative route was to cross the Baudissin Glacier to Mechanics Bay on the east coast, and find the old sealers' route from there to the end of the island. The field parties encountered many difficulties in their early forays. From an early date it was apparent that, apart from an ability to cross glaciers and crevasses, our survey party would need to undertake considerable mountaineering to achieve their object. The island was devoid of flat miles of ice and snow, which would facilitate sledging journeys. Sledges would have to be pulled up mountain sides. All information which excursion parties secured was detailed to the survey party. The information was helpful, and the excursions afforded base personnel necessary recreation.

For twelve days the "met" section reported "ten-tenths cloud." The sky was hidden by the dull grey overcast. We were becoming acclimatised to the cold weather, but the absence of sun in mid-summer did not bode well for the long winter ahead.

Another elephant seal was killed. The kidney was cut out for eating. However, the "sealers," Compton and Lambeth, reported the animal was "full of worms." The "Doc" hastened to the scene and spent hours on the beach making blood tests. Temporarily he banned the use of the meat. Investigations, however, proved the worms were harmless.

The seal kidney was taken to the cookhouse. Fried kidney and native kerguelen cabbage, almost a cross between Brussels sprouts and spinach, made a tasty meal.

In the first weeks we were so busy on the camp it made me laugh to think of the earlier remarks of my friends: "What on earth are you going to *do* all the time you're away?" Well, now I could tell them: Work, work and still more work. It was the same for all. A host of jobs remained to be done—painting, soldering, guttering, erecting water tanks, porches, and then clearing the beach.

Using a pinchbar, jacks and a system of runners, Abbott-Smith and a gang moved the two heavy generators into the engine-house. Both engines were set in concrete foundations. Each machine weighed two tons off the trailers. They were Diesel-electric units, with an output of 15 K.V.A. Equipment still on the beach was brought up when it was required. Valuable materials were covered with tarpaulins until hut construction was finished.

The beginning of February coincided with a mild scare. Men working round the "radio-met" shack said they could smell chlorine gas. One or two of the scientists supported this story. In volcanic areas the presence of this gas is taken as a prelude to an eruption. The possibility that we had erected our camp on the site of an old volcano was eagerly debated. There were two old cones, and several smaller ones, between the camp and Corinth Head. No other explanation was offered for the chlorine smell, which was only noticed on one other occasion, months later.

We heard the news over the rec. hut radio: "In Melbourne the leader of the Antarctic expedition, Group Captain Stuart Campbell, described the landing operations at Heard Island as 'very hazardous.' The landing ship will go into dock for overhaul and inspection. Sir Douglas Mawson and Group Captain Campbell will inspect the ship before she sails for Macquarie Island towards the end of February. . . ."

We followed this news with great interest. We had many

friends in the other island party. When our radio station was on the air a few days later, we sent them telegrams. The message to Lt.-Commander Dixon from the Heard Island party read: "Greetings from all at Heard. Watch the barograph. Good beaching. Keep your feet dry, and roll those drums!"

The captain of the landing ship replied in typical sporting fashion: "Many thanks for greetings. Have fitted all hands with stilts. Good hunting. Dixon."

Further news came over the radio: "The exploration ship, *Wyatt Earp*, will resume her cruise to the Antarctic. The leader of the expedition will accompany the ship. . . ."

It was late in the year for a cruise "to the shelf." Now we knew definitely the *Wyatt Earp* would not visit Heard Island. We would not see another ship until we were relieved.

While working on the anchorage for the second radio mast, Alan Campbell-Drury literally struck gold with his pick! Noticing some bright particles glinting in a piece of rock, he jokingly took the sample to Jim Lambeth, the geologist. After a brief examination under the microscope, Jim announced the rock contained an infinitesimal amount of gold.

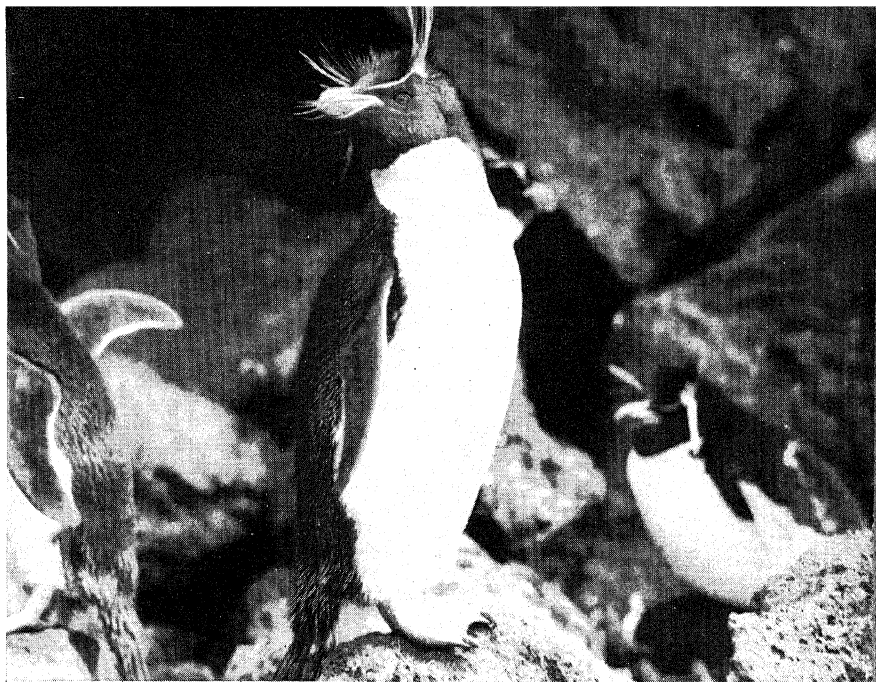
"Don't think you'll make your fortune, old man," he warned Alan. "Such small quantities are often found."

Despite the warning, the discovery caused a hubbub of excitement. Searching round the beach, Campbell-Drury found similar gold traces near Windy City, but the scientists were not impressed. It would take months and months of investigation to determine whether there was any payable gold in the Rogers Head Peninsula, they said. No one would spend money down here when they could get gold elsewhere, so our dreams of a southern Klondyke vanished as quickly as they had arisen.

The second radio mast was raised successfully, but not without some anxiety. This mast was due south of the "radio-

met" shack, a similar distance separating the first tower from the hut. A critical moment came when the second tower was being hoisted by the tractor. For a moment it looked as though it would topple backwards and crash to the ground. Macey was driving the tractor. Campbell-Drury and I were giving directions from the side anchorages. The mooring guys were clear. Macey jumped from the driving seat to inspect the mast. He was half-way back when the top of the mast began to waver. "She's going! She's going!" I yelled, fearing the mast might fall on top of him. Macey turned and sprinted for the tractor. Above the mast was quivering, but the guys took the strain. The steel tower returned to an upright position. "I thought she'd pull the tractor back," Macey told us.

As soon as our radio station was on the air we began tests with Sydney. By the middle of February regular weather reports were being sent to the Sydney Weather Bureau. These covered observations over an eighteen-hours' period daily. Sydney Weather Bureau passed the information to all meteorological offices in the Commonwealth, and to New Zealand and South Africa, the two other countries most interested in movements of South Polar air currents. Southern Hemisphere weather is affected by conditions on the Antarctic continent, which acts as a giant refrigerator. The weather is made on the Antarctic continent. A flow of warm air currents from the tropical regions meets the polar currents. Heard Island weather was determined by the interaction of these two forces. Information from our weather station would be collated in Melbourne by the Commonwealth Weather Bureau, which had embarked on a study of worldwide weather periodicities and long-range weather forecasting. In conjunction with reports from Macquarie Island, and an eventual station on the Antarctic continent itself, continuous records would be obtained. Immediate results might not be gleaned from these polar weather investigations, but valuable information would accrue over the years. Our oper-



Top: Prominent crest on head is the mark of the Rockhopper.
Bottom: Fur Seal Pup, now a rarity on Heard Island.



Top: "Doc" Gilchrist on Schmidt Glacier.

Bottom: Anare, a ten-foot dinghy, the only boat used for trips round the Isle.

ation at Heard Island was the start of these studies. We filled a gap in the southern weather front. Our reports would be of some benefit for immediate forecasting. In a hungry world, the importance of accurate weather information to such a producer of primary products as Australia speaks for itself.

CHAPTER FOURTEEN

"THE OLD PORTUGUESE GHOST!"

THE WIND moaned round the huts. Weird sounds came from the singing guys and masts. In the southern night a half-moon floated on scudding clouds. Cold silence shrouded the distant peaks. Black shadows were the tussock mounds.

The camp lights had been extinguished for some time. In the watchkeepers' hut we had been in bed for an hour. Little heat came from the kerosene stove in the centre of the hut. We huddled up in our blankets for warmth. We were listening to "Lem" Macey reading from a book.

In the afternoon we had been going through the library books. Macey had turned over a blue book, *Notes of a Naturalist on H.M.S. "Challenger,"* by H. N. Mosley, M.A., F.R.S. The prosaic title belied the contents. The book contained the only account we had of a visit to Heard Island in 1873, during the cruise of the *Challenger*.

We had been so interested to hear what the island was like in the days of the sealers that after lights-out Macey continued reading by torchlight.

While he recounted the impressions of the naturalist, we lay listening:

"I had only three hours' time on shore. I was busy hunting for insects, when I saw the captain signalling for a return, and, picking up the biggest sea elephant skull which I could find and knocking a few tusks out of some others, to keep as mementoes of this dismal spot, I made the best of my way across the muddy and yielding plain, and through the glacier stream, although the skull was almost more than I could carry; in addition to rock specimens and a big vasculum. We

got off only just in time, for a considerable sea was running by the time we reached the ship.

"We were to have landed again on the following morning. . . . We got under way at about 5.30 a.m. As we left the bay we saw, even at this early hour, one of the wretched Portuguese starting off to walk the beaches in search of his prey, the miserable elephants. . . ."

As he finished reading, doors and windows rattled in the wind. The masts moaned in ghostly sympathy. It was eerie. The hut door rattled.

"Gee, that might be the ghost of the wretched Portuguese!" a voice whispered from one of the bunks.

That started it! Blood-curdling screams, demoniac laughter, spirit voices, the best the spectres ever produced, were raised in deafening chorus from every corner of the hut.

The row continued for minutes, varied at intervals by death rattles of departed sealers and the mad laughter of tormented spirits. Or so we thought. Finally we could stand it no longer. Laughter rocked the hut from floor to ceiling. We laughed until we could laugh no more. But we had started a legend.

The ghost of the old Portuguese! Manuel Labor, we called him! Whenever a door banged mysteriously or snow fell unexpectedly off the roofs at night, it was always "that old Portugee again!" Finally the "Portugee" became a hoodoo. Manuel Labor was blamed for many human sins. Haunting our camp became only a spare time job. "The old Portugee" was responsible for everything.

The cosmic ray scientists, Jacka and Jelbart, worked long hours to finish the hut which would house their delicate recording apparatus. Shortage of building timber forced them to improvise with packing cases. A darkroom was built as an extension to the hut. So keen were the scientists to set their equipment in working order that, often when I came off

radio watch at midnight or later, they would still be working on the hut.

As the camp developed, the electric power was kept on until midnight. The two young scientists worked by the glare of the electric light. One of the last huts to be erected was the bath hut. More suggestions and criticism were made over this hut than the rest of the camp buildings. The vital question was, What type of heater should be installed? Some favoured the Admiralty hut chip heater, some an electric urn, others the blubber stove. Time and experience provided the answer.

The electric urn was tried first, but proved unsatisfactory. It took an hour to warm two buckets of water. Water splashes short-circuited the heating element. The chip heater was installed, but never tried. Several months later the bath hut attained a civilised degree of efficiency when the blubber stove was assembled. Primarily installed to melt snow for the cookhouse in winter, when we were snowbound and all the water tanks frozen solid, the blubber stove warmed the hut like a Turkish bath. We had two showers, hooked to the ceiling and worked by a pulley device. Shower recesses were made from the metal cases in which the radio equipment was shipped. Anyone could take a shower without undue preparation. Finally the engineer, Johnny Abbottsmith, built an improved blubber stove from an empty oil drum. You just shovelled snow straight from the ground outside the hut into the drum, under which an oil fire roared. Rubber mats, found among the stores, added the finishing touch to the bath hut. We could get a hot shower within half an hour.

At first the taking of showers was a matter for general comment. When a man appeared in the rec. hut for the evening meal, freshly shaved, white-faced and hair combed, the contrast with the unkempt appearance of his neighbours was remarkable. When the novelty wore off, we took to having showers once or twice a week. The early days of camp life

were in many ways the most interesting and enjoyable. The business of showering was an adventure to begin with. The change accomplished by hot water and soap on some faces brought back features and characteristics, hidden for weeks by beards or coats of ingrained dirt. Then, as life round the base camp became a routine, showering became just another chore, though always an agreeable one.

Washing and laundry was done in the bath hut. Clothes were dried in the engine-house. Round the refuse dump dozens of skuas waited from first light for scraps of food. No sooner did "Doc" Gilchrist empty the bins than the birds would be pecking away at the old tins and rubbish.

The "met" section added a forty-foot-high Dines anemometer mast to the camp skyline. It was erected on concrete, near the "radio-met" shack. Round the base of the mast a hut was built for the surveyor. Inside was housed the recording apparatus of the pressure tube anemometer.

Towards the end of February the "met" section made their first pilot balloon flights. Some days four balloons were released, depending upon the visibility and wind. The first flight of the day was made at 4 a.m., in early twilight. Balloons were filled with hydrogen, generated in long cylinders from a mixture of ferro-silicon, caustic soda and water. They were inflated to a diameter of eighteen inches, and rose in the air at a rate of five hundred feet a minute. An observer at a theodolite checked the azimuth and elevation every minute. Wind speed and direction were then calculated. The first balloon was followed to a height of 6000 feet. Later balloons were followed on exceptionally clear days to 50,000 feet.

When flights were made at night, or in the early light, a candle enclosed in a small paper lantern was attached to the balloon. Night flights were followed as high as 12,000 feet by observers watching the small candle through the theodolite. Sometimes it was possible to confuse the small light with a star. Calculations revealed this error.

Data from the balloon flights was included in the regular weather reports. Difficulty was experienced in releasing the balloons in high winds. Strong gusts drove the balloons straight into the ground, for they burst immediately upon contact with an outside surface. The balloon flights were the first steps in our investigation of upper air conditions.

A party retrieving oil drums at Windy City beach saw a fur seal. These animals, sought by the sealers, are almost extinct. This one was identified as a New Zealand-type seal, with a rich light grey coat. Retracting its back flippers, it moved across the ground in small hops, like a wallaby. Several fur seals were seen in the following month. One was seen among the elephant seals near Wharf Point. When we were fifty yards off he popped his bewhiskered face above the hummocks. Immediately alert, his ears sticking up like a cat's, he was off in a trice, hopping from mound to mound. During the winter half a dozen crab-eater seals, with long fox-like heads, were seen on the beaches.

Haircuts caused some horseplay round the camp. The fun began when Aub Gotley, usually quiet and reserved, revealed a secret yen for barbering. Unfortunately, his enthusiasm exceeded his skill. Compton was the sufferer. "Swampy" appeared at breakfast half bald. Because of the variety of hats he was wearing at the time, however, he was not seriously embarrassed. Some men allowed their hair to grow six months or more without a haircut. The mops were so thick, they could have been tied up with ribbon.

It was a similar story with the beards. As the novelty of the first beard wore off, the majority resumed weekly shaving. Only three men retained original beards.

The sleeping huts were drab and dull inside, with hanging clothes, lockers and personal gear. One member later insisted upon keeping three pairs of skis in the rafters above his bed. No one would have objected to this, only the enthusiast took it in his head to clean them in the workshop late at night. At midnight he returned to the hut to replace the

skis. Then, instead of bringing them all in at once, he made a separate trip outside for each ski. When he had finally put the skis aloft, the constant opening of the door had lowered the temperature of the hut by many degrees. His three pairs of skis were cursed separately and collectively by the men rolled in their blankets.

A variety of clothing was worn in bed before we were issued with pyjamas. Even then, like seamen, the majority preferred their underwear. One tired watchkeeper produced a natty pair of bedsocks from his kit, complete with pink ribbons. On cold winter nights the appearance of the "general's bedsocks" provoked whistles and hoots from the other bunks.

Keith York went for a dip in Atlas Cove, with the temperature at 35 degrees Fahrenheit. Snow-topped peaks of Cape Laurens and a perfect blue sky provided an idyllic background. He stayed in the water for ninety seconds, swimming all the time.

Compton, strolling round the huts, noticed a "whale" bird lying on its back between the hummocks. The bird made several attempts to regain its feet, but overbalanced each time. Blue and grey, with white flecks, these birds were seen only at night. In the daytime they lived in burrows under the hummocks. Compton picked up the bird, which appeared to be very young. Three times he released it in the air, but it fell to the ground. We decided to keep the bird as a pet. Compton made a rough cage from a wooden box and wire netting. We made the bird comfortable, lining the cage with packing paper and insulwool. "Doc" Gilchrist examined the bird, but found no broken bones. Feeding on sardine and salmon scraps, the bird seemed to thrive. We fed him by holding his beak open and pushing the fish scraps down his throat with our fingers. The bird ate three or four mouthfuls each meal.

Bob Dovers, while bulldozing a hut site, unearthed a burrow of the "whale" birds. Skuas sighted them in the daylight.

The smaller birds were defenceless against the vicious attack.

When I put my hand in the bird cage at feeding time I generally received a few sharp pecks. We took this to be a healthy sign. One morning, after we had the pet a week, I rummaged in the cage to find the bird. The small body was stiff, but still warm. The bird had died during the night.

Some weeks later hundreds of "whale" birds visited the camp. An electric light had been erected on a tent pole outside the rec. hut. The light had not been on for long before birds were flying everywhere. We could hear them hitting the roofs. When "Doc" Gilchrist entered the hut, seven birds followed him inside, flying into the cookhouse. Attracted by the light from afar, the birds were blinded near the camp. They fluttered round the light like moths, flying into the huts, wires, posts and aërials. You could pick them up on the ground at will and throw them into the air. The birds would fly in a small circle, hit a hut roof and land again.

A similar event occurred when the "met" installed their cloud searchlight. The powerful beam shot thousands of feet into the night. It was only on for two minutes before hundreds of the birds appeared, flying in and out of the beam. When the light was switched off, the birds were lost. They landed all round the camp. They flew against hut windows, where lights were showing. We heard the pitter-patter of their feet on the roofs until we went to bed. By morning, as before, the birds had vanished, returned, we thought, to their burrows in the tussock. The "whale" birds left us in mid-April and were not seen until the next summer.

A weekly roster of "slushee" duties was posted. "Doc" was the first victim. The duties included laying tables, washing up and sweeping out the huts. Other duties were added later to relieve pressure on the cookhouse.

To sparkle up the monotony of dish-drying, the "Doc" investigated the speediest method of handling plates. Norm Jones maintained that in all his years as a cook he had always seen plates wiped separately. It was the quickest method, he

maintained. "Doc" disputed the claim. Macey timed "Doc" over ten plates. Handling each plate separately, he was clocked at 3 min. 52 sec. The other method was to hold the plates in a pile, wiping the bottom one with the left hand and the top one with the right hand. "Doc" shuffled the top plate to the bottom, and repeated the movement. His time was 3 min. 33 sec. A third test was staged, but the stopwatch winder broke, ending the experiments. At the time we were using enamel plates. No such tests would have been permitted with china ones.

The "slushee's" job had certain compensations. You worked in the cookhouse before and after meals. "Privileges," such as extra toast, fruit juice and a free hand with tinned fruit, became part of the job.

We crowded round the rec. hut radio one morning to hear greetings from the Canadian expedition at Fort Simpson, in the Arctic Circle. Roars of laughter greeted the announcer's words that about 3000 Eskimoes, including many women, lived in the area. The Canadians had picture shows six nights a week and a plane service to the cities. It was fifteen below freezing at the time of the broadcast. At Heard Island we were enjoying the end of summer, the temperature hovering about freezing. The Canadians were in no sense of the word isolated as we were.

The cosmic ray hut was finished in March. The two scientists built the roof thin and flat to minimise interaction of the cosmic rays with the materials of the roof and to simplify calculation of the magnitude of this interaction. For the same reasons, the apparatus was elevated on cupboards above the floor and raised as near to the ceiling as convenient. It was housed in an aluminum cabinet, five feet long and two feet high. Inside the cabinet a battery of thirty-six Geiger counters detected the incoming cosmic rays. These were recorded by a complicated electronic circuit, the actual number of particles being registered on small mechanical counters, sim-

ilar to a mileage indicator on a bicycle wheel. The mechanical counters were photographed automatically every hour by an electrically operated camera, controlled by an ordinary ship's chronometer.

In operation, the apparatus made a continuous clicking noise, like a one-finger expert pecking at a typewriter. In the centre of the apparatus was a hollow steel ball, the ionisation chamber, where cosmic ray activity was continually recorded. An early difficulty was to secure the correct amount of uranium for the chamber. Uranium is a standard source of ionisation with which cosmic rays are compared. The problem was to measure .04 grams of uranium, no more and no less. The scientists, Jacka and Jelbart, had no balances or scales. The only scales with the expedition were heavy ones and a small household type in the cookhouse, both useless for the scientists' purpose. Lambeth, the geologist, suggested the problem might be overcome by using copper wire, and assuming that it was 99.98 per cent. pure. The diameter of the wire was measured by the micrometer. The density was found from tables. By calculation, the amount of wire which was the required weight was resolved. By heating a pyrex rod under a hydrogen flame and drawing it out to a fine fibre, the scientists made a micro balance, with a microscope cover glass as a pan. The amount of uranium was then determined by comparison with the copper wire.

Another difficulty was to replace the drive used by the camera recording the activity inside the ionisation chamber. The drive had been damaged during the landing. Nothing daunted, the two scientists determined to make a new drive. They succeeded, using parts of a broken tin-opener, electric relays off the plane wreck, half a mechanical counter and a multi-vibrator.

Cosmic rays come to the earth from distant space. They are influenced by the magnetic field of the earth and by the atmosphere. In order to understand further the nature of the particles, it is necessary to make measurements at various

altitudes and under various atmospheric conditions. Generally speaking, cosmic ray activity is greater nearer the Poles than elsewhere on the earth's surface. The cosmic radiation, which passed through the recording apparatus at about 32,000 particles per hour, consists of particles, such as protons, electrons, mesons and others. Research into cosmic ray activity is primarily research into the study of matter itself. After several test runs of the recording apparatus, first successful results were obtained in April. Cameras were loaded with enough film to record a week's results, running twenty-four hours daily. Results were radioed back to Melbourne University and were given priority second only to the weather reports.

Similar recording apparatus was shipped aboard the *Wyatt Earp*, and was to be sent with the Macquarie Island party. Results obtained by the expedition in 1948 were to be compared with simultaneous records in other countries.

At Heard Island the cosmic ray hut was spaced one hundred yards from the transmitters to overcome the effect of radiation.

CHAPTER FIFTEEN

SETTLING DOWN

LEAVING the "radio-met" shack one night after midnight, I heard queer noises coming across the tussock from the cosmic ray hut. The noise was quite weird and unearthly. A light was still burning in the hut; its pale yellow glow acted as my beacon. When I knocked on the door the noises ceased. Inside the hut Jo Jelbart was squatting on a box, clarionet between his legs! Fred Jacka lounged nearby, smoking a cigarette. I had interrupted a back-stage practice. Fred kept his cello in the rec. hut. With Alan Campbell-Drury as pianist, the trio provided camp concerts.

It was interesting to note how easily we survived without the conveniences of modern civilisation. Daily newspapers, cinemas and other city attractions were things of the past. Often day after day passed without us hearing a news broadcast. There were frequent blackouts, when no stations at all could be heard. No one worried. We liked to hear news from home, but our existence was too down-to-earth for us to worry much about the rest of the world.

Immediate problems of food, shelter and the habits of simple living were foremost in our minds during the first few months. As time flew by we settled down to a small island community life of fourteen individuals. In general, harmony reigned supreme, but, as could only be expected, there were times when temperaments clashed. Selected as we had been, we were as happy as most groups of men would have been. The cookhouse was the focus of all interests, bodily and otherwise. Norm Jones had a monotonous job, cooking day in and out. He was often by himself for hours, while the

rest of us were away on different chores. The cookhouse atmosphere was a good barometer of camp morale.

Before breakfast one morning—the tension had been mounting for several days—we heard Norm say: “Sometimes the glamour of the Antarctic wears a bit thin!” He had been waiting for the porridge to boil. Precisely at the moment he chose to leave the cookhouse to fill a water dipper, the saucepan boiled over. Norm returned to find porridge pouring over the floor and kerosene on the stove ablaze.

“There, you — so-and-so, take that. That’ll give you something to boil about,” he yelled, throwing the contents of the dipper over the stove. Flames shot to the ceiling; smoke filled the cookhouse. Exit the porridge to the four winds!

Ours was a very democratic system. Anyone complaining about the food had the chance to show what they could do when their turn came for week-end cookhouse duties. No one was exempt.

The variety of food we received left no room for complaint. Our fresh vegetables, fruit, eggs and bacon were eked out to last as long as possible. After that we were on tinned food. This was supplemented by penguin meat and Kerguelen cabbage when available. The former was black meat. We ate the breasts of the penguins grilled or fried in butter. It was just like steak. We did not bother with the rest of the birds, only the breasts.

Norm Jones did wonders with the tinned foods, but after several months it became tasteless and monotonous. There were better days, when we had jam tarts, scones, cakes, shortbread and other extras.

The expedition had been rationed on the basis of 5000 calories daily per man. This bounteous figure was never achieved. We could not eat that much! During the construction period, when the hardest physical work was required, our appetites consumed under 4000 calories daily. This figure fell at times below the 3500 calories mark. The possibil-

ity of a food surplus at the end of the year began to worry the "Doc." Over the radio "Doc" heard that German miners were rationed at 1500 calories, but were actually only receiving 900 calories a day.

"I don't know what to make of the world," he said. "Over there people are starving. Here you don't even eat what you're entitled to."

A generous allowance of sweets, toffees, chewing gum and smokes was made to each man. When the issues were made in the rec. hut the atmosphere was that of a thieves' market. Trading, bargaining and cadging were indulged in by all. Chocolates and cigarettes became the island currency. Tins of peanuts were included in the weekly issue, but the shelves of the sleeping huts became cluttered up with uneaten amenities. Some shelves looked like lolly shop counters. I had never eaten so many lollies in my life. We literally ate the lollies to get rid of them. It was the same with the peanuts. None of them had any trade value.

Provision of a small cinema projector and a supply of films for weekly shows would have been a popular provision. We noticed this in winter, when for several months we were more or less confined to the huts by snow and blizzards.

While the bottled beer brought ashore from the L.S.T. still remained in the camp, a bottle could be obtained for three packets of cigarettes. Three months afterwards it was a different picture. Beer went on the black market. Gotley obtained the last six bottles at the price of his cigarette issue for five months—a high figure, but not when the barterer was a non-smoker! No one went short of smokes if their allowance was exhausted before the end of the week. Special allowances were made later for the field men.

On cold days, after working outside, the luxury of "the cup that cheers" was more than welcome. Alcohol was not allowed outside the camp, the medical reasons for this precaution being understood by all. Drinks were available before the evening meal, and on other occasions, if the circum-

stances warranted. Nearly half the party were non-drinkers. In the absence of beer, fruit juice was enjoyed by the majority in preference to hard drinks. For a long time we were three months behind in the allotted consumption of alcoholic drinks, and we never caught up!

Saturday night was the occasion of the week. Liqueurs, spirits and cigars were available for all. After a week of outdoor work this relaxation was something to which we eagerly looked forward. Music and song, tales of the war days, both often proceeding at the same time. Some might be playing cards or I might be giving chess lessons to those who were interested; Bob Dovers might be at his astronomical calculations; "Doc" laboriously mending his overalls, which should have been thrown away weeks before; a Crosby fan would be accompanying the maestro on the radiogram; others laughing and enjoying themselves.

Evenings began to shorten, warning of the approach of winter. More oil-drum shelters were built round the huts to protect them from the winds. Rocks and stones were piled in support; guys were tightened; fresh roof anchorages made. The ferocity of the winter blizzards was anyone's guess. We were taking no chances and prepared for the worst. We knew we could not over-estimate the strength of the hurricanes which blew round the island.

The changing daylight and the ionospheric conditions interfered with radio communication with Australia. For a day the Overseas Telecommunications Commission beamed their Victorian transmitter on Heard Island. The signal was so loud communication became as easy as the suburban telephone.

Early difficulty was experienced with the transmitters, two sections being damaged during the landing operations. Macey repaired a voltmeter with glue and copper wire. Using the watchmaker's lathe in the workshop, he completed repairs to the damaged instruments. Both transmitters had an out-

put of 750 watts, and, like the other radio gear, were standard R.A.A.F. types.

The best part of the radio operator's job was the reception of personal telegrams. There was always a chance of receiving a message yourself! Private messages generally arrived on the sked prior to the evening meal, and the duty operator would take the telegrams down to the rec. hut.

"Anything for me, old man? Anything for me?" The inquiries came from all sides. It was an unenviable job to disappoint the anxious ones. I often wondered if those at home realised how much those personal messages meant. The telegrams were read for days and days, and most messages were shared.

"You haven't had one for a long time. Have a read of mine, mate!" said the lucky to the unlucky. There were no secrets. We all knew each other's hopes and fears.

Between SW Bay and West Bay we found a pretty little cove named Cave Bay. Three rock peaks in the centre of the bay were named the Three Sisters. Jones and Macey were the first to walk over there. They saw the sun setting on the red rocks on the western side of the bay. The cliffs were precipitous. The rust colour was an unusual sight against the black cliff face. Great long pillars set off from the face reminded the men of the columned entrance to an ancient Greek temple. Cries of the sooty albatross greeted them from somewhere high in the cliffs.

"I'd have sworn there was a baby crying up there. The noise was so human," said Jones.

In the bay, down the slope of a hillock, they found a rock-hopper rookery.

As the remaining equipment was brought up from the beach, camp life became more comfortable. Electric hot-air blowers were installed in the sleeping huts. Kerosene heaters and petrol stoves had been used up till then.

Showpiece of the camp was the shiny aluminum cook-

house. It was hard to recognise the ugly pre-fab. which had been first erected. Inside ceiling and walls were insulated and lined with silver paper to retain the heat. It was like the pictures of modern kitchens in the illustrated American magazines.

We'd only stay round the camp when the Sunday weather was unfavourable. Dovers, the surveyor, Compton, his assistant, and Lambeth, the geologist, took every opportunity to tour the hills in the Atlas Cove area. Taking advantage of the evening light, they climbed peaks, like Corinth Head, Mt. Drygalski and Mt. Aubert de la Rue, leaving behind survey poles or building cairns. These were trigonometrical stations, part of the job of mapping the island. Jim Lambeth went on these excursions with his geological hammer and sample bag. The three men laid out a base line, running from the camp for a mile in the direction of Windy City. Dovers found the soft volcanic soil round Rogers Head made ascent impossible. Crampons were useless. There was no grip for his boots. The peak was visible most days, so the handicap was of no importance to his survey work.

The first crossing of the Schmidt Glacier was made by Abbottsmith, Macey and York. They went seeking a possible route to Long Beach and the southern end of the island. It was a quick day trip. Leaving base at 7 a.m., they were back again by 3 p.m., thoroughly tired and worn out, but richer for the experience. They covered twelve miles, three-quarters of which was over snowfields and crevasses. They travelled roped, Abbottsmith leading, probing ahead with his ice-axe for the soft, tell-tale snow which marks the hidden crevasse. They started low down on the glacier and soon found themselves trapped among the ridges. Hummocks of blue ice surrounded them. In the bright sun the ice had a fantastic, unreal beauty. It reminded them of the ruins of a bombed city—in ice. The ice forest led all the way down to the sea, where steep cliffs fell sheer. Abbottsmith led the way out of the trap of yawning, wide chasms. No place for the in-

experienced. They struck up for the higher snowfields. They were continually falling through the snow-bridges, sinking to their thighs. Abbottsmith, the only experienced man in the trio, had to step warily. He frequently saved himself by extending his arms outwards as he fell. They travelled past Cape Gazert, deep blue waters lapping its steep slopes. Further progress was impossible, due to fatigue and the sight of impassable crevasses ahead. They turned for home at 11 a.m. The men had never seen such scenery. The towering ice-covered ridges of Big Ben above them and the long, sweeping ice-field down to the blue sea. In the afternoon the snow began to thaw on the surface. Yielding snow retarded their progress homewards. Skuas flew low above their heads. One came low over York's head and he felled it with his ice-axe. Back in base, all three reaffirmed their determination to get through to Long Beach.

Over the rec. hut radio we heard: "The *Wyatt Earp* is nearing the pack ice on her survey of the Antarctic coastline. Group Captain S. Campbell is aboard. . . ."

Another Sunday I remember well, before winter came, was one when the temperature nodded on freezing, but absence of wind made it feel warmer. The bright sun made an enchanting day and I sat down on a hummock of soft azure, enjoying the unfamiliar warmth. I lay on the grass, lazy, my eyes drawn to the snow-capped arc in the sky. Big Ben dome was visible.

The lower mountain slopes showed patches of bright green where the snow had thawed. Above were the endless, mysterious snow ridges and peaks that I would never climb. It had been a hard week. Norm Jones sat beside me, resting in the sun.

It was a day for dreaming. In Atlas Cove the water was calm, blue, like the sky. Somehow my thoughts strayed to the Bible. "Six days shalt thou labour . . ." The quotation stuck in my mind. I thought that if God had made this island a

wild and savage place, He must have put the mountain there for compensation. If ever a race of prehistoric men had inhabited the island, they would have bowed their heads in worship before the mountain. It made you feel like that.

I would have remained on the grass, lost in thought, had not my companion nudged me. "Let's go down to the point."

I nodded, rising to my feet. We strolled to the beach, past the wrecked plane, and along the "Burma Road" to Wharf Point. It was here we had struggled and toiled to get the equipment ashore. How I remembered those aching muscles! Looking round at the diminishing food pile and materials put me in a reminiscent mood. The pioneering was almost finished now. . . . Yet there was something sad in the thought. Here were sacks of disused tent pegs, empty and battered cases, timber runners. The sunken outline of a damaged pontoon showed above the rippleless water. A blue-eyed shag, frightened by our approach, pushed out his long neck, beat the air swiftly with his wings and flew off over the water.

We wandered lazily along the beach. A king penguin met us by the plane wreck. He was very tame. We stroked and rubbed the back of his neck. Aub Gotley, on a photographic tour, came up the track. We leaned against the yellow fuselage, the sun warming our faces.

Above the camp three tall silver pencils pointed to the sky. I counted eighteen huts. Fresh red paint shone on the roofs. Others were green and blue. The colours sparkled in the bright sun, blending pleasantly with the green of the tussock and the grey of the "Nullabor."

CHAPTER SIXTEEN

“WHEN THE WIND BLOWS!”

THE FULL MOON was riding high in a clear sky when March came to the island. Absence of clouds gave the snow-covered ground a maximum of radiation. The temperature fell below freezing. It was the clearest night we had experienced. From base camp the white tops of Cape Laurens Mountains, the rugged outlines of Corinth and Rogers Head were plainly seen. At night they had a ghostly beauty. Snow had lain on the ground for three days, but the fine weather was an illusion.

Another succession of cyclones swept the camp area in the first week of the month. The anemometer registered gusts of 80 m.p.h. Little outside work was done. Snow fell in increasing amounts, but the high winds, tearing across from the NW and WNW, did not permit it to settle on the ground.

By international standards, a gale is defined as a mean wind exceeding 39 m.p.h. At Heard Island the speed was calculated over minimum periods of a quarter of an hour. The “met” section logged nine gales for the month. On twenty-eight days gusts exceeded 40 m.p.h. On nine days the gusts reached 72 m.p.h.—hurricane force.

“We’re in one of the windiest spots in the world,” said Gotley, gleefully rubbing his hands in anticipation of a century-breaking wind. He did not have many days to wait. Gotley thrived on the vagaries of the wind. In the months ahead he was to get more than his money’s worth. The climax of the stormy months was reached on March 25.

In the morning the wind came rushing in from NNW, a gust of 97 m.p.h. being recorded. The wind raged all day. I

struggled down to Wharf Point to watch big seas dashing over the rocks, smashing against the cliffs across the cove. The tide was higher than I had ever seen it. The tractor track was under water. The point was almost cut off like an island from the camp. Oil drums were being lapped by the sea. They were on high rocks and in no immediate danger. On the beach the tide was creeping slowly towards the remaining equipment and unsorted stores.

The wind grew in intensity. Fearing that the sea might rise still higher and flood the "Nullabor" flat, all hands were called to move the stores to safety. In blinding snow and hail, with the terrific wind blowing in from the cove, we worked like donkeys. Using the tractor to pull the sledge, we made trip after trip from the beach to the higher camp. Load after load was brought up from the beach. The sea was twenty yards from some stores when they were retrieved.

Visibility became worse. From the beach the camp huts were blurred outlines. Snow and the hail fogged our goggles. Black clouds, low, menacing over the hills, swirling snow, the blowing spray presented a picture of desolation as the storm approached the zenith of its fury. Rain trickled down inside our windproof hoods; boots squelched and slipped; hands were cold and wet. No clothing could keep out the penetration of three forces—snow, hail and sea spray. By lugging the heavy cases on the sledge, unloading the other end, we kept warm. By four o'clock in the afternoon we had saved everything movable from the beach.

Gotley made a special issue of grog for the troops. We had beaten the storm. As though the elements would vent their anger at our efforts, the tempo of the hurricane mounted.

By twenty past four the wind crescendoed; a gust of 102 m.p.h. was recorded. In the shaking survey hut the "met" men watched the jumping pen-arm of the anemometer recorder. Aerial down-leads were carried away. Huts shook on their foundation. The main aerial came down. The transmitters were off the air.

Snow and gravel rattled against the windows. Inside the huts the hail sounded like machine gun bullets on the roof. Clouds of sea spray blew in from the cove, sweeping over the buildings.

By six in the evening the anemometer had registered a gust of 103 m.p.h. All evening the gusts whistled through the radio masts and guys. It was a monotonous noise: "Whooooom, whoooooom, whoooooom!" A giant organ tuning up. The sound smothered conversation in the rec. hut.

Macey and Campbell-Drury ventured outside to repair the main aerial. They found the seven-strand wire split in two places. They tried splicing the breaks, but the strength of the wind tore the aerial out of their hands. The wire billowed out in a semi-circle, like a great skipping rope. The two men abandoned the effort, returning to shelter.

Odd pieces of timber, masonite and empty wooden boxes were picked up by the wind and hurled across the flat towards Corinthian Bay. From the rec. hut windows a float off the wrecked plane was observed sailing through the air. An empty drum was rolled half a mile across the flat.

At night the wind swung round to SSW. At 10.35 p.m. the most powerful gust hit the camp area, tearing at the roofs, straining windows. Those watching the anemometer pen-arm feared it would jump the chart. It ended just below the edge—105 m.p.h. The buildings took the strain, but the wind continued to blow a hurricane force. At four minutes past midnight another gust reached 101 m.p.h. It was the dying kick of the storm. The wind dropped with the morning light. The skies cleared.

The following day the radio in the rec. hut gave us a laugh: "The Macquarie Island party will be taking eight goats and thirty sheep on board L.S.T. 3501. They will be used to supplement the party's food supplies."

The thought of our friends leading the goats ashore down the ramp was more than we could stand. Macey wired Gersh Major, the Macquarie radio-physicist: "Good luck. Have good

time. Remember, no kidding. Ewe know what I mean." The answer, when it came in a couple of days, had us tricked. The wire said: "Remember story of illiterate ram. It applies to all youse."

Macey asked the boys in the rec. hut if they knew the story. There was a silence. Then a ram-like bleat squeaked:

"Look youse, I can use all youse ewes!"

The flag was run to the masthead above the rec. hut. The surrounding circle cheered. Our station was on an operational basis.

We heard more about the *Wyatt Earp* over the radio: "The exploration ship penetrated the pack-ice to a depth of thirty miles, off Cape Grey. It is hoped a party will be able to survey the Balleny Islands for a permanent weather station."

Then, a few days later: "*Wyatt Earp* is moving eastward, surrounded by great icebergs. One berg sighted was five miles long and three hundred feet high."

Leaks developed in the hut roofs in the March gales. The rec. hut and the watchkeepers' sleeping hut were the worst. Campbell-Drury awoke to find water dripping on his pillow. The leaks were covered on the outside with masonite strips and canvas, and then painted. Leaks in the rec. hut could be put on the account of the elephant seals. During construction, roof panels had been left out overnight on the ground, ready for assembly next morning. Seals trekking from the beach to the tussock mounds found the panels and slept the night on the smooth surfaces. Their weight cracked two panels in the middle.

Hut doors were constantly being blown off. The door of No. 1 store came off four times. Finally Macey, the camp storeman, became tired of putting the hinges back. He nailed the door up until such time as he wanted to go there again. The wind blew out the windows in the workshop and cracked another in the kitchen. No other damage was suffered.

A case of magazines was opened for use in the rec. hut. We

found a varied selection of publications, covering women's fashions in New York and Paris, model aeroplanes, stamp collecting, knitting baby clothes and home gardening.

Over the rec. hut radio we heard: "L.S.T. 3501 has left Hobart for Macquarie Island, where a scientific party will be landed. . . . Meanwhile the *Wyatt Earp* is at the Balleny Islands. The ship will try to force a way through the pack to Commonwealth Bay."

We closely studied the weather reports from Australia. Day after day we followed the progress of the L.S.T., discussing the coming landing operations like veterans. A message from the landing ship reported that she was making seven knots. Position, two hundred miles south of Tasmania.

An outboard motor was fitted to the ten-foot yellow dinghy, which we had christened "Anare." Lambeth and Abbottsmith went for a trial run in Atlas Cove. They met endless trouble starting the motor, finally rowing back to the mooring buoy. They built a slipway near Wharf Point from metal pipes and parts of the wrecked pontoon. A winch was installed so the dinghy could be dragged clear of the water on a cradle. York, Lambeth and Abbottsmith went for a further trial. They intended sailing to the extremity of Cape Laurens, but the weather beat them. They had more starting trouble. Through glasses from the camp we watched them rowing to the middle of the cove. When the motor started, they steered for Windy City. Here they struck a strong surf. Though the three men were wearing exposure suits, the clouds of spray flying over the dinghy left them cold and wet. The spray worked under the hoods of their suits and trickled down their necks, and began filling the bottom of the dinghy. One man began bailing with a tin. The dinghy rode the waves, but they were forced to return to the safety of the slipway. They were out for an hour, but were wet and shivering from the continuous drenching of the spray. Other trials followed with the dinghy. Adjustments were made to the outboard. Soon afterwards Macey, Abbott-

smith and Lambeth made another effort to reach the end of Cape Laurens. They started at 7 a.m. one day, pushing the dinghy out, intending to be away for three hours. Their luck was out. After swinging round the mooring buoy in the freezing air, trying to start the motor, they postponed the trip till the afternoon. Snow fell heavily before they left for the second time. They headed out into the roadstead, under leaded skies, the motor purring sweet tones. The men relaxed in anticipation of an enjoyable trip, looking forward to a change from camp routine.

Outside the shelter of Atlas Cove, the dinghy jumped up and down in the rollers. When the men were a mile from the shore the small boat caught an extra bump. Water swirled round the stern, flooding the air intake pipe. The motor stopped immediately. The men tried for half an hour, but all efforts to restart the engine proved useless.

Fearing they might be drifting away from the island, they hoisted the emergency sail, attempting to beat back with the NE wind. The wind proved to be little more than a puff and would not even fill the silk. Lambeth checked their position by Black Cliff, a thousand feet sheer drop into the ocean, along Cape Laurens. After a quick observation, he told his companions they were drifting steadily away from the island in a NW direction. If the wind had changed—as it often does, almost without warning in the Antarctic—the boat would have been driven away from the island. Alone in the dinghy in the Antarctic Ocean their chances of survival would have been negligible. The men realised the seriousness of their position. They unshipped the oars, bending their backs for the hard long pull homewards. The dinghy was heavy, unmanoeuvrable. It took them two hours to reach the shelter of the cove. They were tired and hungry when they returned to camp. Their trip had been a lesson. The dinghy never left the cove again without a favourable weather forecast and all precautions being taken. As the outboard engine was "run in," there was never the same trouble with the boat.

Our first and only athletic meeting was held near the camp in the middle of March. The first event was the running of the hundred yards dash. The course was laid over tussock mounds, and included natural obstacles, such as deep puddles and somnolent seals. The trophy was a genuine bottle of Scotch from the expedition stocks. There were twelve starters. Alan Campbell-Drury, the island photographer, wished to compete in the race, so I took the movie. The race which followed must be unique in sporting annals!

Competitors lined up in their outdoor working clothes. In order to photograph the whole race, a false start was staged for the camera. I then hurried on the finishing line to photograph the winner. "Shorty" Carroll acted as official starter. Twice his rifle jammed when he attempted to start the competitors. Hoots and jeers rose from the athletes, some of whom were a quarter way down the course before being recalled. Finally "Shorty" tired of trying to fire the wrong ammunition from the rifle. Throwing it aside, he yelled: "All right, you mob. Get in line. Ready! Go!" Half the field did not know the race had begun till they saw "Shorty" shooting down the course. Running bare feet, "Doc" Gilchrist was an early failure. Stumbling over a hummock, he measured his length in a pool of doubtful looking liquid. At half-way Jo Jelbart was well ahead. He went on to win by five yards, in the time of 21 seconds. The rest were strung out over the whole course. Johnny Abbottsmith was second, followed by a group of dirty, mud-splashed figures. Last was Norm Jones. "My legs are too short. I had to go all the way round the hummocks," he panted. Gotley presented the trophy to Jelbart. The rest of the programme was cancelled, while spectators and competitors adjourned to the rec. hut to help the champion enjoy his triumph.

I accompanied Bob Dovers on a short trip to the top of Mt. Aubert de la Rue, a 500-foot crater below Mt. Olsen. It was a sunny day. Climbing was warm work. I held the survey

pole at different points on the mountain side, while Bob made theodolite readings from the summit. From the rim of the old crater you could look down into the cavity and see where it came out in a tunnel, 200 feet above the sea. There was a bird's eye view of the Atlas Cove area from the summit. Behind, on the razor-back ridge to Mt. Olsen, was a dangerous path over soft volcanic rocks and scree, falling steeply into the sea on either side. On the western side of Mt. Olsen a pallisade of aiguilles stood, proud and lone, atop precipitous cliffs. When Bob first climbed Mt. de la Rue he found a lone penguin's nest near the top. It was a mile from the sea. The rest of the rookery had been disbanded.

Dovers, Jacka and "Doc" made the first important climb, reaching the table-top of Mt. Olsen on March 14. The trek up the last 500 feet of the 2120-foot mountain was made over hard snow. The climbers were exposed to the NW wind. A 60 m.p.h. gust ripped off Jacka's red beret. It disappeared in the direction of Atlas Cove. From base camp we watched the climbers through glasses—black ants crawling up a white wall. At times they were obscured from view by snow squalls from the west. When they turned for the descent, they found their uphill tracks had disappeared under the fresh snow. Two-thirds up the mountain side they found a suitable camp site for the field party, who were waiting to begin their survey of Cape Laurens. One camp site, at first considered a good one, was found on closer examination to be a snow-bridge, covering a twenty-feet-wide crevasse.

CHAPTER SEVENTEEN

FIELD PARTY

ON THE NIGHT of March 15 the whole sky above the island was streaked with coloured light beams. Norm Jones was the first to notice the Aurora australis when he woke up an hour before midnight. The whole camp turned out to watch the changing colours in the sky. Outside the huts the temperature was several degrees below freezing. In our thin pyjamas and hastily seized clothing, we soon felt the cold. The spectacle in the heavens was an ever-altering pattern of colours. The rays were like coloured searchlights. Rays turned from light green to red, from white to vermilion. Elsewhere in the sky there was a light blue and mauve combination. It was a kaleidoscope. In a greatly exaggerated fashion, it reminded me of a coloured spotlight playing on the darkened ceiling of a ballroom; changing colours and patterns interweaving with each other, in every corner.

The cosmic ray scientists were interested in the appearance of any aurorae, in case there was any relation between the latter and the cosmic radiation. They used a spectroscope to analyse the light beams. That night they spent more time gazing at the phenomenon than they did in bed.

The aurora interfered with radio communication. A complete blackout covered all frequency bands. When I twiddled the receivers on the early morning watch, instead of the usual medley of chirping Morse noises, there was a dead "whooooosh" round the dial.

Short-wave communication between distant points, as between Heard Island and Sydney, about 4000 miles, depends upon the ionosphere. Upon leaving the transmitting antenna, the radio signal is projected into the air at such

an angle that it would continue on indefinitely into space, if its path was not bent back towards the earth by the charged ionospheric layer which exists about sixty miles above the ground. This region is caused by the ultra-violet radiation from the sun. Auroral displays, which are accompanied by magnetic storms, have the effect of breaking up the ionospheric layer above the polar regions. Aurorae occur during periods of sunspot activity. A stream of electrically charged particles is ejected from the region of the sunspots. As the earth moves in its orbit, it passes through this stream of particles.

These interact with the earth's upper atmosphere, producing the characteristic lights of the aurorae—in much the same way as the lights in a neon electric sign are produced. Owing to the magnetic properties of the earth, many of the particles are deflected from their initial course. This is most significant in the equatorial regions and accounts for the absence of aurorae in those parts of the world. The aurorae occur in the Antarctic regions, with maximum frequency on the circumference of a circle about twenty-three degrees from the magnetic axis pole. Heard Island is about twenty-six degrees from the magnetic axis pole, and was, therefore, considered to be in a good position for observations. The weather was very unco-operative. During our time on the island aurorae were seen on many occasions. Many, however, were merely reflections of the auroral light from the clouds.

The most recent year of maximum sunspot activity occurred in 1938. Such maxima are known to occur about every eleven years. It was expected, therefore, that our stay at Heard Island would coincide with another period of great sunspot activity. For this reason, auroral displays and radio fade-outs were likely to be frequent. An investigation into this branch of science was to be undertaken at Macquarie Island. All that could be done at Heard Island was to note the signal strength of radio stations and the times of fade-outs.

While the aurora interfered with one side of our activities, it was hailed as an oracle by the field men. Since their first day ashore they had been chafing at the bit, impatient to get away into the mountains. While base camp was being built, the assistance of all hands was required. Dovers, Lambeth and Compton, making tours in the long evening twilight after work, had visited the majority of peaks within easy distance of camp.

They had run the survey base-line from camp on a north-south axis. The northern end was marked by a base pedestal in the camp area. This point was the initial survey origin. By star shots over many weeks, Dovers calculated the latitude and longitude of this point. Unfavourable weather delayed the astro work. Week followed week with perpetual cloudiness. No stars were seen. Later in the winter Dovers and Compton installed a tide gauge at the end of a plank jetty in the lee of Wharf Point. A continuous record of the tides in Atlas Cove was maintained and the sea level was determined. Heights of mountains and other points surveyed by the field men were computed from this level.

At the end of his astro work, Dovers fixed the position of our island at south, 53 degrees, 01 minutes; east, 73 degrees, 23 minutes. This position was sixty miles away from the position shown in one atlas in our possession.

The field men hoped to finish the survey of the Cape Laurens area before winter settled in, when it was feared outdoor work would be impossible. The peninsula covered approximately fifteen square miles of rugged mountain country, with hardly a flat stretch in the whole area. They began their operations in the middle of March. From the very beginning the weather was unkind. It was alternately thawing and freezing. The men, Dovers, Compton and Lambeth, all inexperienced in such country, would have been better off if the temperature had been lower. Then the ground would have remained frozen hard, the snow firm and dry. Instead, the contrary happened. The men experienced hail,

rain and snow in varying quantities in the first weeks. One day the ground was frozen hard; next day it was muddy and slushy.

They made their first camp at 1300 feet above sea level, two-thirds of the way up Mt. Olsen. A light nylon tent was pitched near the first hump of the mountain. From their camp they viewed the whole of Atlas Cove and both sides of the island. Out to sea, they could see the McDonald Islands to the west, and Shag Islands, almost due east. In addition to his pack and sleeping bag, Compton lugged a thirty-eight pounds walkie-talkie radio up the mountain. A radio sked had been arranged for 7 p.m. with base. The first night Compton did not come on the air. At base we could see a small glimmer of light winking at us from the mountain top. Macey aimed the portable signal lamp in the direction of the light, but we could not establish communication.

Compton had unpacked the radio at the end of his trudge, only to find the set unserviceable. Approaching sked time, he had left the tent to signal with a torch. The cold proved too severe for him to stay outside. After flashing his torch to indicate that everything was all right, "Swampy" dived back into his sleeping bag. The trio in the tent had an uncomfortable beginning. The tent was suitable for only two men. The three of them could not stretch their legs in comfort. Tall Jim Lambeth suffered more than the others from the cramped position. From the first night their sleeping bags became damp. Without waterproof coverings, the damp leaked through to the inside. There was some consolation in the scenery which met their eyes when they opened the flap at sunrise.

They had an unrestricted view of Big Ben. The top of the great mountain was pink as the sun rays splashed the snow. Fantastic snow formations near the dome shone like red minarets and battlements.

In the morning Gotley and Macey climbed to the camp with replacements for the radio. The field men were not far

from base, but it was considered that regular communication, as well as an emergency safeguard, would assist them in the job.

On March 17 radio contact was established with the field men. They reported a 60 m.p.h. wind howling round the tent. That afternoon a pilot balloon released from base recorded a wind of 100 m.p.h. at an altitude of 2000 feet, approximately the height of Mt. Olsen, and wind-blown snow prevented the survey team from doing any outside work. The men were confined to the tent all day.

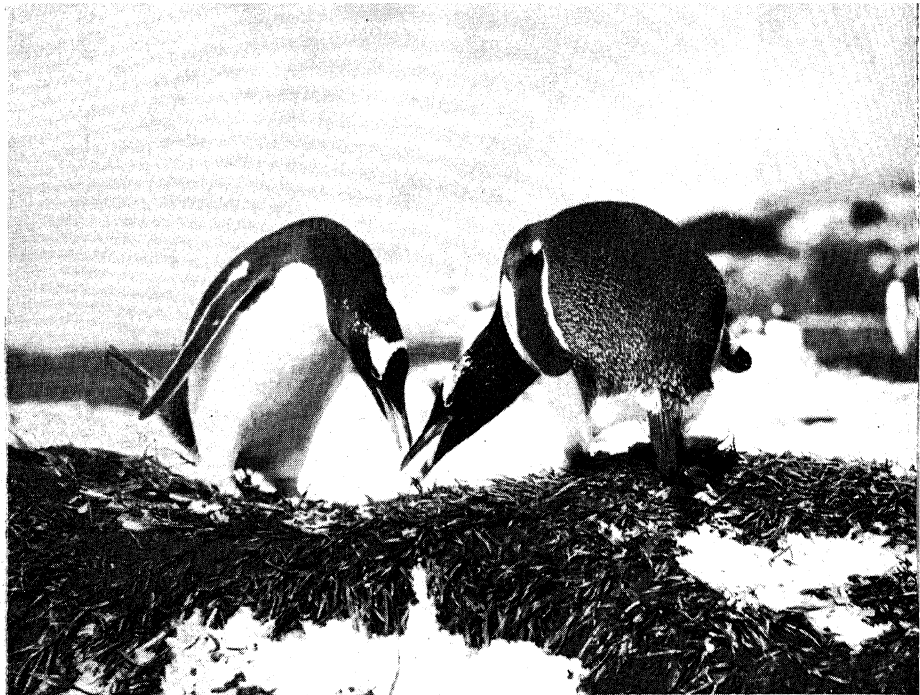
Next day Jim Lambeth battled for forty minutes to climb fifty yards up the snow slope to return to the tent. Hurricane gusts were blowing from the NW. The wind whistled over the mountain hump, driving the snow up in a great cloud. "I had gone outside to see if it was possible to do any work," Jim explained afterwards. "I was carrying the plane table and hoped to get in some mapping. I had not gone far down the slope from the tent before the wind became stronger than ever. Any idea of work was out of the question. The snow was so thick, I could hardly see where I was going." When Jim decided to turn back, the thought was easier than the deed. In the face of wind and snow, he was soon in difficulties in the deep drifts.

In the nylon tent, Bob Dovers, hearing the higher note of the rising wind, began to worry about Jim, expecting him to return. Compton must have read his thoughts. They decided one should stay in the tent and the other venture to the edge of the slope to look for Jim. There was a chance that he might have found it more expedient to descend the mountain than to attempt to regain the tent. Dovers left the tent and peered over the edge of the slope. He saw Jim struggling manfully up the last fifty yards. Bob went down to give him a hand.

"Thanks, Bob. I'd begun to think I wouldn't make it," gasped Jim. He had been forced to abandon the plane table further down the slope.



*Top: Bob Dovers comes out of his hand-made tent for air.
Bottom: Feeding time for Seal Pup at Heard Island.*



Top: Gentoo Penguins courting.

Bottom: Rockhopper Chick.

The three men crouched in the tent. Snow piled up outside, forcing the sides inwards, further cramping their space. Lambeth, a shade over six feet, could only half-crouch.

Returning to base, the men reviewed their equipment. All agreed the tent was too small, but would have to do for the time being, as they had nothing better.

Compton considered the general issue type of sleeping bag was useless in the snow. His companions agreed. Three waterproof-covered bags were given to the field men, who decided to modify a second nylon tent by extending the snow-flap and reinforcing the tie guys. The field men suffered for their inexperience, but learnt to live in the mountain country by the hard process of trial and error.

When the men returned to the mountain camp, Johnny Abbottsmith went along to show them how to build an igloo. The temperature was four degrees below, but not cold enough for the snow-house to freeze solid. Despite dripping water from the roof, the inside of the igloo, eight feet by four feet, was roomier than the nylon tent.

Johnny returned to base after a night in the field, his sleeping bag sopping wet. In the igloo the three men had more room, but a constant drip, drip, drip from the roof made the night long and miserable. Outside a blizzard raged, but the temperature would not fall.

In the early morning the highest pinnacle of Big Ben was visible from the mountain camp. Clouds did not allow Dovers enough time to aim his theodolite. Behind the camp there stretched the long slope of Mt. Olsen and distant peaks, which seemed higher. The men cooked breakfast in the igloo and started the survey work.

Bob Dovers set the theodolite on the tripod to take a round of angles. He was continually wiping the telescopic eyepiece, which quickly clouded over in the cold air. To hear the men working was like listening to a foreign language. Compton, notebook handy, stood nearby, stamping

his feet to keep warm, while Dovers, eye at the instrument, called the readings.

"Corinth, R.O. (reference object) . . . face left . . . horizontal . . . three-fifty-niner . . . fifty-niner . . . fifty-two.

"Verticular . . . niner-two . . . fourteen . . . five-three.

"Saddle Point, R.O. . . . twelve zonk (nought) . . . two-one. . . ."

Compton jotted the numbers into the ruled columns, checking them back in the same fashion. A jumble of sounds and figures to the uninitiated. The surveyors followed the same method when they made a round of depression angles to sea level. Triangulation was used for the greater part of the Cape Laurens survey. Towards the end of this work the men were unable to climb high enough to read angles along the coast. Instead, they mapped the coastline by sub-tense bar and theodolite.

Over the rec. hut radio came the news: "The *Wyatt Earp* is returning from the Antarctic continent. The exploration ship will call at Macquarie Island on the way back to Melbourne. A scientific party is being landed on the island from L.S.T. 3501."

At the mountain camp there was trouble with the second nylon tent. The men had found the igloo too damp. The constant thawing caused the roof and walls to drip, so the igloo was used as a store-house.

The nylon tent was an hexagonal shape, with a diameter of six feet. The dural centre-pole was collapsible. It broke in the first high wind and was replaced by a spotted gum range-pole. The guys tore away from the nylon fabric. The tent ground sheet, attached to the snow-flap by press studs, worked loose. The tent was made of a rubberised nylon, the ground sheet being of the same material. Tents of this type were light, warm and easy to carry. In other zones they would have been ideal, but they were too small and not strong enough to withstand the hurricane-force winds which beset the field party.

Jim Lambeth had a second adventure on his way back to Atlas Cove. He descended the slope to Mt. Olsen quicker than he intended. He slipped while carrying his geographical equipment, the rescued plane table and stand, alidade and hammer. Jim was unable to stop himself on the hard, glazed surface of the snow. He slid for two hundred feet on the comfortable portion of his anatomy, further progress being prevented by a large snowdrift.

While Dovers and Compton stayed at the mountain camp, Lambeth made excursions round the western coast of Cape Laurens. His geological activities did not always coincide with the movements of the survey pair. If there was an unusual rock face meriting geological examination, Lambeth would go off on his own. All specimens of interest were evidence for the geological map. Round the west coast of Cape Laurens he came across the largest penguin rookery in the northern end of the island. The rookery extended for sixty acres. There were penguins as far as the eye could see the rocks and cliffs. Lambeth estimated there were at least 100,000 rockhoppers there. The penguins had moved around so much they had worn distinct paths and tracks over the stony ground.

Round the coast Lambeth found some huge formations of limestone. He took samples, chipping them off with his hammer and placing them in his little bag. Near West Bay he found wooden spikes, spars, driftwood and planks, relics of the days of the sealers and the sailing ships.

Compton and Dovers returned to base for a spell. Their sleeping bags and clothing were soaked. Under such conditions it was impossible to stay away from base for more than a few days. "Doc" Gilchrist weighed the sleeping bags on the men's return. As much as 2 lb. weight a day had been gained through saturation. "Doc" considered 35 lb. weight was the heaviest pack a man should carry over snow or mountains.

There was a danger to the men in the soaking bags. At the

end of a trip, when their resistance was lowest, they would be carrying more weight than when they started from base. One trip, Compton left base loaded like a packhorse. He was surprised to learn later how much he had carried! He struggled up to the mountain camp with radio, sleeping bag, pack, rations—a total weight of 69 lb. After five days in the field his sleeping bag had gained in weight from 14 to 22 lb.

The radio told us that the *Wyatt Earp* had met the second scientific party at Macquarie Island: "*Wyatt Earp* was unable to penetrate the pack as far south as the Antarctic continent, but a party was put ashore at the Balleny Islands, 150 miles to the north. The exploration ship reported sighting icebergs twenty miles long. . . ."

In the weeks following the field men made many trips back to base to dry sleeping bags and clothing. It is interesting to describe how they spent a typical day in the field, as related by the men themselves and told in their diaries, which I was privileged to read.

During their survey of Cape Laurens the days were closing in rapidly. It was the end of summer and the beginning of winter. The weather became progressively more severe. In the field the day began between seven and eight o'clock. One of the three men would creep out of his sleeping bag, crawl outside and fill a container with snow. The first out of bed made breakfast. Over the petrol pressure stove, a mixture of rolled oats, powdered milk and hot water was cooked. "Wishee-washee" porridge, the field men called it. It was the standby breakfast. The others ate breakfast in their bags. The porridge was supplemented by a mug of malted milk or "kai," our term for the rich, thick chocolate.

If visibility was good, the men would spend the whole day outside working. They carried their lunch with them, generally a tin of bully and biscuits. They did not bother with hot drinks through the day. It would have been neces-

sary to return to the tent to make them. If thirsty, they would suck snow or icicles, allowing them to dissolve slowly in the warmth of their mouths.

In early winter the light began to fail at half-past three, when the men would return to the tent. While the others cleaned up the tent, one man would prepare the evening meal. As snow melted in the container over the petrol stove, the "cook" would throw in pieces of bacon and dehydrated vegetables to make a stew. The resulting mixture was "a powerful drop." After the stew they had hot drinks. Strangely enough, it was seldom tea they drank. They preferred "kai," the thick hot chocolate. Sometimes they rounded off the meal with dehydrated fruit and boiled rice. The soup-stew and the "kai" were the ingredients that kept their spirits up. The hot food worked wonders. It was the looked-for moment of the day when the hot drink warmed their bodies, even down to the tips of their toes. The men retired to the bags as soon as the meal was over. For half an hour or so they yarned and smoked, or ran over the work of the day by the light of a guttering candle. The light was continually knocked over and out! Often the men wondered why there were no serious consequences. If they wanted a hot drink late at night, they were welcome—only they had to get out and make it themselves!

About six o'clock of an evening there began "the act with the walkie-talkie." One man might be using the transmitting case as a pillow or reading desk. The phones had to be found. The aerial was probably under a sleeping bag. Before the radio was set up the whole tent had been ransacked. Finally the telescopic aerial had to be shoved through the top of the tent. The microphone, hand-set and batteries gave endless trouble in the damp conditions. Sometimes the men would hear base come on the air before they were ready.

"Base calling field party. . . . Base calling field party. . . . Come in, please. Over."

The call would last ten minutes, while the men in the tent feverishly struggled to effect repairs by seven o'clock—sked time.

Then, when their own set was O.K., they might hear base go off the air! This was the final straw. The men felt like throwing the radio over the mountain side. The radio became more of a nuisance than a help. It was too heavy to carry with the other gear.

At night conditions in the tent were invariably uncomfortable. Lack of proper sleeping bags and air cushions to raise the bags above the snow were severe handicaps. The Army boots were always wet. Before going to bed the men put all their gear, including pack carrier, on the ground. Boots and ration bags all went underneath their sleeping bags. Their aim was to get as high above the snow as possible. The men wore all their spare socks and sweaters in bed. Lambeth put a pair of gloves on his feet, sleeping with his hands in his pockets.

The moisture from their breathing and the steam from the cooking stove condensed on the walls of the tent. Water dripped down on them. In the morning the hoods of their bags were frozen stiff. The dripping water and the snow carried into the tent on their clothes and boots gave the men plenty of thawing to do in their sacks.

It would be nice to record that they slept soundly, but it was not so. Lambeth frequently awoke with pains in his joints and was seized with fits of shivering. Compton and Dovers suffered from the latter. One night they spent four hours trying to dry out a sleeping bag over the petrol stove. However, after a day's rest in base, there was not much wrong with any of them. If they had undergone such exposure in a more temperate zone the consequences would have been worse. The absence of microbes on the island prevented the development of colds, influenza or other ills of civilisation.

CHAPTER EIGHTEEN

SCIENTIST AT WORK

IN HIS geological hut Lambeth began a microscopic examination of the limestone specimen. He chipped a piece about half an inch square off the specimen and ground down one side of the surface with carborundum. The surface was ground until it was smooth and nearly polished. Using Canada balsam as an adherent, the sample was placed on a microslide. Turning to the other side of the sample, Jim repeated the grinding process, until the limestone was a thousandth of an inch thick. He placed another glass cover-slip on top to complete the slide. The job of making one slide took an hour.

A look into the microscope was like peeping into an unknown world. With the object magnified seven or eight hundred times under the polarised light, you could see a rainbow of colours. Pin-point articles became the size of pebbles, but it was all old stuff to the geologist, who worked with the precision and direction of the professional.

Examining the limestone slide, Jim detected minute spiral shell formations, the characteristic form of the globigerina fossils. There were parts of a dozen fossils on the slide. These globigerina live in the sea. When they die the small shell drops to the bottom of the ocean. The shells are minute and never attain the size of a pin-head. The fossils are found at a depth of two thousand fathoms, where they build in the course of time.

Lambeth's discovery was important evidence regarding the origin of the island. The tiny fossils had once been far below the surface of the ocean, when the whole island was

still under the water, before it had been brought to the surface by earth movements.

There was further evidence for the geologist. The rock strata for twelve hundred feet above the globigerina limestone bore the characteristics of off-shore deposits. Lambeth examined the two volcanic craters at Rogers Head. In the ash deposits there were small limestone lumps. He had expected to find further limestone traces round the island.

His belief that the island was an oceanic one, and not a continental one, placed it in the same category geologically as the Hawaiian Islands, Iceland, Jan Meyen and nearby Kerguelen Island.

Oceanic islands are generally poor in mineral wealth compared to the continents, where the greater wealth of the world is concentrated.

The original theory by the German geologist and leader of the Greenland expedition, Dr. A. L. Wegener, that Australia, South Africa and parts of the Antarctic continent were once contiguous, had been supported by the discovery of similar coal deposits in the three areas. In the course of time it was thought that Australia might have been moved by earth tides and allied forces to its present position. It was likely, therefore, that similar minerals might be found in the islands between South Africa and Australia, if these islands had been broken off when the continental movement occurred.

The geologist's discovery showed simply that Heard Island was not one of these islands and had not been part of Australia when that continent moved across the tract of the ocean.

On Good Friday Compton and Dovers were in the camp at Mt. Olsen. They came in on the 7 p.m. sked, and reported finding bird's feathers inside the igloo on their return to the camp. Apparently a bird had ventured inside for shelter or in search of food.

From the "radio-met" shack the Australian news broadcast was relayed to the men on the mountain. It was a simple matter of placing the walkie-talkie microphone in front of our radio receiver.

When the men on the mountain unrolled their sleeping bags at night, they would find them still soaking from the saturation of the night before. After one trip Compton came into the rec. hut and shook the icicles out of his bag on to the floor. The need for the men to make their own tent was a job which occupied two whole weeks. Wear and tear on boots and clothing over rough ice-encrusted lava gullies and moraine slopes was the worst trial to come.

At Easter the "met" section made the first radio-sonde balloon flight. Soundings of humidity, upper-air pressure and temperature were taken by these radio flights to high levels in the atmosphere. A small transmitter was sent aloft, attached to a free hydrogen-filled balloon. At release the balloon was inflated to a diameter of six feet. As the balloon rose in the air it increased in size. At 60,000 or 70,000 feet the balloon had doubled its original size.

The transmitter sends radio signals representing changes in atmospheric pressure, temperature and humidity. The signals were received on a recorder in the "radio-met" shack. The recorder translates the signals into a trace of the balloon's flight. This enables a meteorologist to follow continually in proper order the constant changes of the weather. The first radio-sonde balloon released on the island reached 38,000 feet. The upper-air soundings were coded into the five-figure international weather code and radioed to Sydney with the regular observations.

The radio-sonde recordings were plotted on a "pseudo-adiabatic" diagram, a chart representing the atmospheric changes occurring during the flight. A study of these findings and the weather reports from South Africa were the founda-

tion for the weather analysis and forecasts which Gotley made nightly.

Chief difficulty with the radio-sonde balloons was the release. The terrific gusts round the camp made this a tricky business. To bring the inflated balloon gingerly out of the hut was Keith York's pigeon. He would wait for a favourable lull into the wind before venturing outside. Then the balloon would run the gauntlet of the gusts. In a high wind it became stretched, as a long pear-shaped tear, and would burst easily. Sometimes Keith would sprint for two or three hundred yards across the snow and ice, holding the small transmitter in his hand. The balloon had a slow initial rate of ascent. Keith had to run with the transmitter so the balloon would gain a certain height, otherwise the trailing transmitter would hit the ground. When the balloon rose too slowly the transmitter was damaged by bouncing on the ground. Occasionally Keith tripped and fell heavily when running with the transmitter. Once he had the mortification to see the balloon wrap itself round the radio mast; another time a transmitter came down on Big Ben. Another time Keith was on top of the store hut before he released the transmitter. It was always a difficult undertaking, except on windless days, which occurred once or twice a month. Then the transmitter and balloon could be released as soon as they were brought from the balloon-filling hut. The balloon rose gently in a vertical ascent.

If the first balloon came to grief, another was soon ready to take its place. It was rarely both attempts failed, but there were occasions when the third release was the lucky one. Balloons were released in a mean wind of 35 m.p.h. and with gusts up to 50 m.p.h. Experience proved that this was the limit at which releases could be obtained.

The results of the first radio-sonde flight at Easter showed that at 10,000 feet, approximately the altitude of Big Ben Peak, the temperature was zero Fahrenheit. This figure was noted with care, for a section of the expedition was keen to

climb the mountain if time permitted. The flight gave the would-be climbers an indication of what they might expect. The minimum temperature during the flight was recorded at 30,000 feet. It was minus 52.5 degrees Fahrenheit. However, when contact was lost at 38,000 feet, the temperature had risen ten degrees, to minus 42 degrees Fahrenheit. The third balloon sent aloft was released under ideal conditions, reaching 60,000 feet before bursting. The minimum temperature shown in this flight was minus 72 degrees Fahrenheit at 30,000 feet.

When the large radio-sonde balloon was brought out of the balloon-filling hut, the effect on the birds was extraordinary. Two or three dozen skuas congregated round the refuse dump, about fifty yards from the hut. When the folding door of the hut opened, the sudden appearance of the balloon frightened the birds, as if a giant white egg was being shown to the world of nature. The skuas rose in the air, screeching. They circled above the camp until the balloon disappeared into the clouds. One by one then they landed, to return to their eternal task of scrap-hunting.

A week later Dovers and Compton returned to base from Cape Laurens Mountains. The latter was suffering pain from an obstruction in his nose. After probing and syringing Compton's left nostril, the "Doc" removed the offending object—half an almond. Days before Compton had been eating a tin of almonds in his bunk.

The field party moved to their second camp at an altitude of 1720 feet. Intermittent freezing and thawing made conditions very trying. Clothes and sleeping bags were dripping one day and frozen, stiff as boards, the next.

The new cap, in a snowfield, was set against an Alpine background of white peaks running to the end of the cape. To the west there was a pallisade of aiguilles, snow-covered rock fingers pointing to the sky. Below was the sea, a five hundred feet perpendicular drop from the aiguilles. The men

had pitched their camp under the shelter of the last and highest aiguille, which they named Sister 4. They continued the survey, making the best of fine weather, spending hours in the tent during blizzards and periods of bad visibility.

In April a 70 m.p.h. wind whipped the snow straight in the air off the western face of Mt. Olsen. From Atlas Cove base camp the snow was seen to rise over a mile-long front. It was an unusual spectacle, but one which occurred several times in the following months. The snow formed a white cloud above the mountain, and could have been mistaken for smoke erupting from a volcano.

Day-time temperature round Atlas Cove fell below freezing. The camp barometer was fifteen and a half feet above sea level, so we were not likely to experience big temperature changes at base.

But the field party experienced weather several degrees colder. Dovers' theodolite froze up while he was working. The men built another igloo, bigger and better than the first one. In the colder weather the roof did not leak. For a few days they lived comfortably in the ice house. It was completely windproof; their sleeping bags were warm and dry.

Three days later there was another thaw. The roof of the second igloo collapsed. There was no mention of igloos for months.

Round base there was an epidemic of locking men inside huts. Several huts had bolts on both sides of the doors. The high winds made this necessary. Once inside a hut, you had to bolt the door. However, it was the easiest thing in the world to leave a hut, bolt the door through force of habit, forgetting someone was still inside. At first it was a good joke to hear that someone had been locked inside a hut for two hours. A vacant chair at meal times meant only one thing. The missing man was locked in either the survey or bath huts.

"Doc" was concerned in several of these incidents. He was in the habit of working at peculiar times. When others were thinking of going to bed, the "Doc" would be on the roof of Admiralty hut, working by the glare of the electric light. He was converting the hut into a medical centre and biological laboratory. We became so used to his whim for working at different hours that his absence from the rec. hut was seldom noticed.

One night hammering was heard for a long time. No one in the rec. hut worried. No one thought there was anything unusual in the noise, which went on for two hours. Suddenly Johnny Abbottsmith pricked up his ears.

"That can't be the 'Doc,'" he said. "He'd never be hammering that fast! He must be locked in somewhere!"

"Must be 'the old Portugee Manuel Labor,' trying to waken the dead!" offered another.

A wail of artificial ghost noises followed this remark, but the hammering continued. We went in a mob to the bath hut. In despair of ever being heard and with the prospect of spending the night in the cold, draughty hut, "Doc" was making last efforts to attract attention. When released, he was beating a tattoo on the floor with his boot. Wearing only pyjamas and dressing gown, it had been hard for him to keep warm. When he had finished his shower and shave, he had found the door bolted on the outside. After shouting for half an hour without success, he had curled up on the wooden table and gone to sleep. He had woken up shivering with the cold, and had been doing his best to keep warm until we heard him.

When in base, Bob Dovers used the survey hut. The anemometer recording chart was there. The "met" men read the chart each time they "made an obs." This dual use of the hut led to many locking-up incidents. Bob was locked up one whole afternoon from after lunch until the evening meal. At first the incidents were funny, but they happened

too often to be funny for long. No one ever thought of changing the locks on the doors! Finally, when the outside lock fell off the bath hut, no one bothered to replace it.

"Doc" went into the dentistry business. Damage had been caused to teeth by the hard sweets, which, because of their shape, we called "torpedoes." The sweets were included in the emergency landing rations. Some of us considered they were the best part of the ration, but the "torpedoes" were hard and compressed. They were meant to be sucked, not bitten. When bitten, they cracked the teeth and broke old fillings.

The first ten days in April constituted a period of special activity in the international aerological organisation. The "met" section sent aloft as many balloons each day as conditions permitted. Flights were made at standard times throughout the world. An analysis of global weather conditions was made during the period. The "met" section worked hard to play their part. Five balloons were released some days. As the most southerly weather station in the world, fulfilling the first-class requirements of the international organisation, information on the upper-air conditions would be a valuable contribution from Heard Island.

Sea leopards began to invade the beaches in great numbers in April and May. The elephant seals had been lying around in heaps since our arrival. The bull seals lay together, shunning the cows. Only an occasional sea leopard had been seen. Now the leopards lay all over the beaches. Their numbers increased daily, until you could walk along Corinthian Bay any time and count more than a hundred. Strangely enough, their appearance coincided with the departure of the elephant seals, who vanished on the approach of winter. Only the straggler elephant seal was seen in the following months.

The leopards seldom moved far from the water. Their savage appearance, especially when they opened their jaws, was misleading. More timid than the elephants, they slid

into the water when you approached. They lay on the beaches by themselves. In the middle of winter we saw a few small leopards, which we thought were last season's pups. Before the end of April the "Nullabor" flat was covered with snow, a white carpet, two miles to SW Bay. White "paddies," or sheathbills, assembled round the camp, fossicking for food scraps. At the back of the cookhouse Norm Jones took pity on a small number of them and started feeding them. Before a fortnight had elapsed the "paddies" had become the bane of his life. The number had increased to several dozen, all looking fat and well-fed. If Norm left the cookhouse door open, half a dozen "paddies" would sneak inside and begin picking the floor for scraps. Once chased outside, the cheeky birds would sneak back as soon as the cook's back was turned. It was not long before Norm was contemplating drastic measures to rid the whole island of "paddies." The "paddies" fought among themselves in the most vicious manner over food. They flew on the roof of the cookhouse and pecked away at the wooden rafters. They were little cannibals. If a bird was disabled the others would pick it to death. They spent more time walking on the ground than flying in the air. They roamed the beaches, picking at the tails of the sleeping seals. In a vague way, the "paddies" resembled bantams, but they could run faster. They spent their days walking round the camp, prodding with their beaks anything that looked edible. Like the other island birds, they were crafty and quick to learn. When we first reached the island the "paddies" would chase any tin or scrap of paper. They soon learnt what not to chase. Like the skuas, who were ever hanging round the camp, the "paddies" learnt to know the meaning of the upraised arm and the whizzing stone. The skuas migrated for the winter, but, like the poor, the "paddies" were always with us.

Over the rec. radio we heard the landing ship had reached Melbourne from Macquarie Island: ". . . the ship returned

with three seals and twelve penguins for the Melbourne Zoo."

In a microphone interview, we laughed to hear Lt.-Commander Dixon describe how they lassooed the elephant seals. There was some confusion in the messages received at Heard Island about the landing operations at Macquarie. One account reported an L.C.V.P. and two pontoons had been lost. Another message was different. D.U.K.W.S.—amphibious landing craft—had been used with great success. This second report said the operations were not as hazardous as those at Heard Island. With two versions to choose from, and our own experiences fresh in our minds, we concluded the Macquarie party must have run the gamut of the L.C.V.P.'s.

In subsequent broadcasts we heard that the large number of elephant seals at Heard and Macquarie Islands was engaging the attention of experts.

"It is considered there are commercial possibilities in the numbers of elephant seals," said the announcer. "They have been successfully exploited in the South Orkney Islands." We awaited the outcome of this news with great interest. Other suggestions were immediately proffered to exploit the island. A factory for tinned skuas or "paddy" pie was a popular suggestion.

One morning I came into breakfast after the early morning radio watch, to find a fire extinguisher on my plate, ready for me to digest. It was a present from the boys of Heard Island Volunteer Fire Brigade to their chief. Since offering my services to fill the fifty-odd extinguishers, I had been vested with this title. There had even been promises of a brass helmet and a bell, but they never materialised.

The temperature rose to 39 degrees Fahrenheit at noon one day in mid-April. "Doc" ate his lunch alfresco, stripped to the waist.

Signs of approaching winter were evident everywhere. The temperature was several degrees colder. Animals and birds were migrating. One day we saw forty migrating pen-

guins waddling across the flat Nullabor from Corinthian Bay. It took the birds all day to get across the flat, covering rocks and stones and the white carpet, where they left their peculiar footprints. They disappeared into the water at Atlas Cove, swimming away to no-one-knows-where for the cold months. SW winds made the days feel cold. The winds took their toll of the "met" balloons.

When a cyclone had passed the island, everything was different. On windless days the smoke from the bath hut rose in a perpendicular spiral. The sea was calm, unruffled. Such days seemed warmer than they were. There was generally a pale blue sky, and the white table top of Mt. Olsen would be visible. One such day a small group stood outside the cook-house, admiring the scenery. Big Ben was visible to the dome. Pointing towards the mountain, Campbell-Drury suddenly sang out: "Look at that avalanche!"

We looked at the névé slopes. A white cloud was rolling down from underneath the ribs of the dome, curling over, like a breaker at the beach. The snow wave raced down the slope, finally exploding into a bigger cloud. When the snow settled, we looked at the mountain through glasses. The avalanche had left a smear on the white slope, where it had travelled for thousands of feet before losing its momentum. On the same day we heard ice falling off the glaciers. One fall was observed in Corinthian Bay. The ice splashed the water before the noise of the fall reached the camp.

Further news of the *Wyatt Earp* came over the radio when the exploration ship returned to Melbourne. It was the end of the season's operations in the Antarctic. "It was impossible to reach Commonwealth Bay, owing to the density of the pack ice. Purchase of a more suitable vessel by the Antarctic Planning Committee is under consideration. . . ." said the announcer.

"Doc" was keenly interested in the animal and bird life of the island. In the course of his peregrinations he found a

"paddy" with a leg caught in an empty jam tin. Trying to get free the bird had almost severed its leg on the sharp lid. "Doc" decided an operation was essential if the bird was to be saved. That night a cyclone reached hurricane force. Powerful gusts tore round the huts, while the "Doc" converted the cookhouse into an operating theatre. Those reading in the rec. hut put down their books and passed through the servery to watch the operation.

"Doc" amputated the "paddy's" leg, binding up the stump. He kept the bird in the warm engine-house for three days' convalescence. If released earlier, the bird would have fallen an easy victim to his fellow-cannibals. When the bird had recovered "Doc" painted a blue identification mark on his head before releasing him. For days we kept vigil for a "paddy" with a bright blue head, but to no avail. There were so many "paddies" round the camp, identification became impossible. The "paddies" lived round the hummocks, sleeping in any shelter they could find. Walking round the camp at night, you could flash your torch round the hummocks. Even then the birds would be scratching the snow for food scraps.

Preparing to blow the tops off fourteen empty drums, Bob Dovers, who was resting in camp, ran a long trail of cortex explosive. The fuse passed near the garbage cans, where the skuas gathered. Bob left the gelignite at the end of the fuse, returning to the drums to supervise the final arrangements. When he turned to walk back to the gelignite, the skuas were pecking at the wrapping paper. Before he could reach them, they had pecked through the paper, swallowing the gelignite. According to all the rules, several dozen skua bodies should have been found round the garbage pile next morning. No such thing! The birds were still there, none the worse for their explosive meal.

We found a skua near Admiralty hut with a broken wing. The injured bird could walk. "Doc" examined the bird,

keeping him for three days in the hut. The other skuas had migrated for the winter. The injured bird joined the crowd of "paddies" that haunted the cookhouse. The skua became so tame we could feed him from our hands. The bird developed a trick of swallowing whole eggs. Some of the preserved eggs were of doubtful wholesomeness. They did not smell too good and were condemned. We gave them to the birds. The "paddies" daintily pecked at the shell before attacking the inside of the egg. Not so "Skua, the Doer." He swallowed the egg, shell and all. It was quite a performance to watch the shape of the egg slipping down his gullet. One day by mistake the skua was given a hard-boiled egg to swallow, one left over from breakfast. The egg disappeared the same way as the others, but two days later the skua vanished, and we never saw him again.

The last of the twenty huts in base camp was erected in April. We had used every piece of timber available. For some mysterious reason two school blackboards had been included in the expedition equipment. For many days they rested on the beach, their purpose a puzzle. Finally they were employed as the roof for the lavatory. A ping-pong table had been sent down for recreation purposes. If we had wanted to play the game, we would have had to build another hut to house the table! However, the table was damaged and incorporated into the construction of a hut porch. Sections of the metal parachute lockers were used as walls for porches. Spars, driftwood and deck planking from SW and West Bays were used to finish the huts. This wood was used to make extra sledges for the tractor. The towing over rocks and stones took toll of the sledge runners, but the remaining cases were cleared from the beach.

Before the end of April radio contact was established with the South African Expedition at Marion Island, 1400 miles to the NW, our nearest neighbours. In an exchange of messages we learnt about their set-up. On the island there were four

Europeans, with six Tristan da Cunha natives as labourers. How we could have used the labourers during the landing operations and the camp construction!

A daily exchange of weather information was arranged with the Marion Island party. Bob Dovers and I challenged the South Africans to a chess game, one move to be radioed each night. They had only one player on the island, namely, Mr. A. Crawford, the meteorologist in charge. In view of our advantage in numbers, we forfeited our queen at the start of the match. News of the chess game reached Australia. The progress was even followed over Johannesburg radio. The match assumed international importance as it continued month after month. Unfortunately the South Africans were relieved in August, and the game had to be declared a draw.

CHAPTER NINETEEN

CAPE LAURENS

THE FIELD MEN continued their work from the camp high up Mt. Olsen. They still had to return to base for refit. One occasion they were absent only twenty-six hours. They had reached their camp after battling up the mountain through snow and hail storms. It was almost dark when they saw the remains of the collapsed igloo in the névé. The small nylon tent nearby was buried under the snow. The men were cold and wet to the skin.

Grimly they set about preparing their abode for the night. With an entrenching tool and their ice-axes they dug out the tent, and they found the inside walls were damp. The men built a snow barricade around the tent for protection from the wind. The cooking stove was found to be unserviceable, so the men crawled into their sacks, tired, in wet clothes and without the comfort of a hot meal in their stomachs.

Back in base gusts of 73 m.p.h. were registered on the anemometer chart. The mountain field party spent a miserable night, with the wind hitting 100 m.p.h. Before the morning light had come, the wind tore through the tent. Rents began to appear in the fabric. The three men huddled together in the cramped space, gaining what warmth and shelter they could from their closeness. By daylight their structure was in pieces. It was obvious they could no longer operate under such conditions. Disappointed, but wiser for the experience, they turned for home at first light. If the temperature had stayed below freezing, they might have been able to carry on for a few days. The snow turned to slushy rain. Instead of falling off their windproof clothing, the snow soaked through to their underclothing, leaving their bodies chilled

and wet. On their return the men at once reviewed their equipment. If they were to complete their programme, only one decision could be made. They would have to make their own tent. Using a roll of waterproof canvas, they set to work in the rec. hut. The room took on the appearance of a local ladies' sewing guild. Without a sewing machine, it was laborious work. The men studied the designs of tents used on previous expeditions. Finally they decided to manufacture a pyramid tent, or wigwam, similar to those used by Captain Scott. The design was admirably suited to operations on the island, but the manufacture was tedious. Every stitch and seam had to be hand-sewn. A week was occupied in making the pyramid. The new tent had four sides, each seven feet long, to allow the men ample room lying down. Four supporting poles met at the top of the pyramid. Entrance was gained by a canvas funnel in one side. The funnel could be pulled inside the tent and fastened. This would help to keep much of the snow out of the tent. As the men crawled through the funnel, the snow would fall off their clothes and boots. The only handicap to the new tent was its weight. The canvas weighed twenty pounds, the poles another sixteen pounds. Every unnecessary pound was a telling factor in the mountains. The tent poles could be carried separately, but with their packs, sleeping bags and rations, the men's strength would be fully taxed to reach the snowfields behind Mt. Olsen.

The men were learning from their experience. Each trip they weighed their equipment. Rations were cut to the exact amount for the trip. Dumps were left at Windy City and on the site of the first mountain camp. Scientific instruments were left at the field camp. All these moves economised on weight, leaving the men free to move with their loads reduced to the safest minimum. If tinned food could be carried in nylon bags, the tins were thrown away, the contents emptied into the bags. Sugar was carried in bags, tobacco was

carried in bags. The nylon bags were sewn by them in the rec. hut. This saving in weight alone was considerable.

The men left Atlas Cove base on April 23. Snow lay a foot thick along the beach as they tramped round the semi-circle of the shore. The morning sky was fine and clear, the temperature below freezing when they reached the scree slopes at the foot of Mt. Olsen. Here the snow lay thicker than before. The men sank to their knees in the loose earth and snow. It was hard plodding. The going became worse as they approached Sister One, the first of the aiguilles at the thousand-foot level. A soft layer of powdered snow hid the hard glazed surface of the frozen slope. It was almost a case of one foot up and two feet down, as they clambered up the slippery side. Only with the support gained from the use of their axes were they able to pull up the last few feet, shoulder packs and gear telling heavily as they neared the top. Without crampons the climb would have been impossible. With Dovers in the lead, they reached Sister One, halting there for smokes. They had to plough through similar conditions to reach the camp under Sister Four. Heavy erratic gusts of wind rose up from the western ridge of the mountain, sucking up the air and snow on the eastern side. The men were ice encrusted from head to foot when they reached camp. The new tent was pitched, and from the beginning the men were pleased with their workmanship. The walls might not afford the same airtight shelter as the nylon tent, but a candle stayed alight in the tent, burning brightly, despite the high wind. The stiff canvas, reinforced by snow and ice, did not flap as frequently as the lighter nylon. The first night was comfortable. A hot meal and hot drinks, and no water drips from the canvas roof before they went to sleep. In the morning when they rolled out of their sleeping bags, ice crystals had formed inside the tent. The colder weather was drier, more comfortable.

The men spent the morning taking angles and sights on

visible peaks. In the afternoon they wrenched another round of angles out of the weather, sighting the McDonald Islands, 30 miles due west. They appeared as five or six separate islands in a five-mile circle. Needle Island rose sharply out of the water like a pointed column. The main peak of the group was 691 feet high. The islands looked a vicious trap for shipping. At night after the sked, the men listened to the news broadcast from Australia, relayed from the "radio-met" shack.

Anzac Sunday, April 25, was ushered in by a 65 m.p.h. wind and a temperature of 25 degrees Fahrenheit. The three men in the tent felt the wind seeping through their clothing, running over their flesh like rivulets of cold water. Throughout the day Compton complained that his feet felt frozen. It was only when he took his boots off at night that he found one of the soles had worn through. After lunch the men cached the scientific instruments and set off to cross the valley behind the peak of Mt. Olsen. It was hard going through the deep snow. A gale was blowing to hinder their progress, but the journey proved worth while. As they rounded the side of Mt. Olsen's tallest peak, they could see snow peaks ahead to the end of the peninsula. They had seen nothing to equal the panorama that confronted them.

"The peaks looked like a huge series of dobs of ice cream," Compton wrote in his diary. "The farthest peak was 300 feet higher than Mt. Olsen."

The highest peak stood alone, a white sword pointing skyward. In many places the ice face was overhanging. Deep criss-crossing crevasses made the peak impassable. The mountain was a complicated ice mass, ruttled with chasms and thin ice ribs. The men agreed they would never reach the top, and in accordance with the occasion and the unconquerable nature of the mountain, named it Anzac Peak. Compton's camera froze while trying to photo. the peak. Instead he drew a rough sketch in his survey notebook. From where the men stood they had their first glimpse from the

land of Red Island, their goal, at the extremity of Cape Laurens, its volcanic origin revealed by the crater cone in its centre.

The men were hoping to find an easy path down the western side of the mountains to the beach. Dovers led, the other two being roped at thirty feet intervals. They climbed slowly up the steep side of the razorback ridge which divided the peninsula. Dovers, probing cautiously ahead with his ice-axe, reached the edge of the ridge, peered over and quickly withdrew. He signalled his companions to halt in their tracks, and be ready to take the strain on the rope should he lose his footing. Lambeth and Compton dug in their axes, leaning over them on their stomachs, gripping hard, ready for the sharp pull. It never came, but Dovers was standing on the edge of a thousand-feet gully. The brink was brittle with wind-worn ice. Another step forward, a loose footing and he might have precipitated an avalanche, which would assuredly have had fatal consequences. Foot by foot Dovers edged away from the ridge to rejoin his companions. When he enlightened them, all enjoyed a hearty laugh. Where they had hoped to find a gentle descent, they had found the dangerous opposite. So down on the map they named it Avalanche Pass.

They returned to camp for the night. The gale blew with renewed vigour until morning, but the hand-sewn canvas pyramid withstood the fiercest squalls of snow and hail. There was ample room within for the men to extend themselves, but their comfort was short-lived.

The events of the next twenty-four hours would be remembered when the rest of Cape Laurens' survey was forgotten. The men decided in the morning to shift camp to the beach at the base of the Jacka Glacier. The pack carriers were roped to the four tent poles to make a sledge. The men began dragging the sledge, on which they had loaded their equipment, half a mile to the crest of the valley above the glacier, which fell 1500 feet to the beach in the middle of the peninsula. Deep, soft snow caused the sledge to bog.

Hauling the equipment was the hardest task the men had encountered. A terrific wind added to their difficulties. Black snow-filled clouds loomed above the white valley. Yard by yard they pulled the sledge, sinking to their thighs. Nearing the crest they became exposed to the full force of a hurricane gust. The shock blew them off their feet, upsetting the sledge. Then the clouds opened. Snow blotted out all visibility. Barely able to see each other, the men crawled over the snow, crouching round the overturned load. Ice formed on their eyebrows, beards, hair and clothing. They struggled amid the appalling conditions to right the sledge, a task which called for all their strength. They struggled as only men struggle when they fight a grim battle for survival. Their food, shelter and clothing was aboard the sledge. Its loss would have cut them off without a chance of reaching base before dark. Blizzard conditions made conversation impossible. Each man knew his task and what was at stake. Straining, pulling and floundering in the snow, they succeeded in righting the make-shift sledge. The loads had to be replaced evenly. By the time they had finished, they were weary with the effort.

In the failing light Lambeth spied a sheltering rock not far below the crest. For a quarter of a mile they crawled on hands and knees in the deep snow, dragging the sledge. The wind was strong, whirling the snow around in thick clouds. Such perseverance was bound to win through. When they reached the rock, it had taken them an hour to cover the short distance from where the sledge overturned.

While resting and recovering their strength, they discussed the seriousness of their position. Lambeth and Compton agreed that the wind, tearing over the glacier crest, must have reached 115 m.p.h. Both men had been at Atlas Cove when the plane was wrecked by the hurricane. They knew the strength of the island winds.

They decided to push down the glacier with all speed, but a new disappointment met them. Where they had hoped the

sledge would travel freely down the slope, it again became bogged. The snow was soft and deep all around. They had to push and drag the sledge all the way down to the beach. Darkness was falling when they at last reached the boulder-strewn beach. While the others unloaded the sledge, Lambeth found a camp site within a short walk. When they crawled into their sleeping bags after a hot meal, they found the insides sodden. All their clothes had been dampened when the sledge capsized.

The night at the bottom of the glacier was a forlorn experience. The wind continued to blow at gale force, whipping the canvas wigwam till the men wondered how it could possibly stand the strain. Sleeping fitfully, they could hear the ice falling off the glacier throughout the night. Occasionally one of them would awake, seized by fits of shivering, joints numb and cramped with cold. The others would do their best to ease his suffering, rubbing his limbs and holding each other close for bodily warmth. When first light broke through the clouded eastern sky, the men left their sacks and ran about the beach for warmth and exercise. The tent was sagging at a perilous angle. How it had survived the storm of the night was something they never understood.

They set about re-rigging the tent, drying their gear and digging a drain round the camp. Compton dished up a thick, hot stew for breakfast, while the others put their gear in order. Over after-breakfast pipes they held a council of war. Their sleeping bags were soaking. Dovers and Lambeth had been unable to dry out their clothing. The condition of Compton's boots was serious. Once more it seemed they had no other course but to return to base and refit. So back they tramped along the beach to Atlas Cove.

After resting a day the party assembled in the rec. hut for more sewing. This time they tacked ground sheets round the sleeping sacks. It meant more weight to carry, but also chance of a dry night's sleep.

The routine of the radio watch and weather reports made you long for a change. Late one night Keith York and "Shorty" Carroll accompanied me on a walk to Wharf Point. When we left the "radio-met" shack, the night air was calm and still, the moon hidden. A thin, faint outline of fog blowing across from West Bay gave an eerie appearance to the foreshore. Shining our torches, we picked our way between the tussock clumps. On the beach the tide was lower than I had ever seen it. Elephant seals lay under the water. In the dark we had to be careful not to tumble over them, but they shuffled off when we concentrated the beams of our torches on them.

We walked over the sand and stones to Wharf Point. It was darker there. Small white shapes were moving ahead of us on the track. They were gentoo penguins, which we must have disturbed in the middle of their slumbers. It was a surprise to see them there, as we thought all the penguins had migrated. Apparently these returned to the shore at night time. In the light of our torches the penguins were baffled. They wobbled round in circles, not knowing which way to turn. One penguin was asleep on the top of a hummock. We rubbed his back and stroked him for about a minute. Then he was suddenly awake, alarmed by the lights shining in his eyes. He stood on his two legs, pushed his beak in the air and cawed his protests. When he realised he was surrounded, he began to whimper—a noise which you could expect a puppy to make, but, coming from a penguin, it seemed so strange. He made so much noise that we left him alone. He took the opportunity to slither off the perch on his belly, beating the ground with his flippers, vanishing in the direction of his mates. Several penguins came right up to the torchlight beams. When the beams were held steady, the penguins approached within an inch of the flashlights, peering with one eye into the bulb. There they stood, transfixed, eye almost touching the glass. When we moved or waved the torches, they became frightened and scooted off on their bellies.

From Wharf Point the camp lights were dim and ghostly in the spreading fog. Lonely beacons on lonely land. On our way back we disturbed the "nellies" sleeping near the plane wreck. They vanished into the black shadows, waddling awkwardly.

While the gentoos were at Wharf Point, we watched them diving into the shrimp-filled water on their fishing expeditions. In the shallow water you could see them swimming under the surface for fifty yards before they rose for air. Often they came ashore again, a short distance from where they had entered the water. If you followed round the black sand, they would repeat the manoeuvre, coming ashore fifty yards higher up the beach. They left a light curved trace on the surface where they had been swimming.

Alan Campbell-Drury frequently brought penguins into the camp. He seemed to have a way with them. Perhaps it was patience, but it was no trouble for him to shepherd two of them up from the beach. It was nothing unusual to be at the radio desk, while a penguin padded round the legs of your chair. When left to their own devices, the penguins wandered round the hut, peering into cupboards and gazing at the "met" instruments.

In the library books we read that penguins were delighted by the sound of music. Most of us thought this was all nonsense. We did not believe the story, but decided to put it to the test. Alan lifted a gentoo on the radio desk and switched on a jive programme. The bird peered at the loud speaker, blinked and stayed motionless for the next ten minutes. All the while we stroked the bird, rubbing his white shirt. How on earth could one tell whether he enjoyed the music? He had no way of expressing pleasure that we would understand. One story related that penguins responded to the noise produced by a set of bagpipes! The longer we were at the island the less credence we placed on stories of the Antarctic animals. Most tales seemed to be imaginative romancing. We took the same gentoo along to the rec. hut and placed him

near the radiogram. The bird was as tame as that. He stood listening while six records were played. He never moved. He might have been standing in front of a brick wall.

The penguin went for a tour of the hut, tripping over the chair spindles, poking his beak into corners. He stood on the scales and tried to jump up the wall. Possibly the orange colour of the varnish deceived him into thinking it was something else. The highly polished surface of the piano next attracted his attention. When he stumbled over the foot pedals, he saw his reflection in the veneer of the bottom panel. He gazed at his image in the shining wood, hypnotised. Then he tried to walk through the panel to join the other "penguin"! We experimented by placing a large mirror in front of him, but he did not react at all. Apparently he saw nothing.

The first of a series of weekly broadcasts to the expedition was made from Melbourne. Fiancées and next-of-kin relatives were brought to the microphone to speak to the parties at Heard and Macquarie Islands. Many times reception of these broadcasts was marred by local conditions. Musical request items were played, and the Friday broadcasts became the highlight of the week. We heard expedition news and news from home. One week was particularly comic. One member of the expedition, a single man—a fact well known to all of us—was startled to hear that the following week his wife would be speaking to him! Wife! The poor man took more kidding in the next few days than he had for the whole of his past life. Interest was intense the next Friday. All crowded round the receiver to hear the outcome. When the explanation came, it was a pleasant surprise. The lady announcer apologised, adding that the man's mother would be speaking to him.

"Of course, we all knew that — is a single man," she added.

"Oh, that's good advertising!" chipped in the man who

had lost his "wife," and, incidentally, the reputation of being the darkest horse in the expedition.

Days were shorter. Snow squalls more frequent. The temperature fell to 23 degrees Fahrenheit. Huge blocks of ice were thrown up on the sloping beach at Corinthian Bay. Straggler elephant seals lay sleeping in the frozen puddles and glacier streams. The Nullabor flat wore an ever-deepening coat of white. The snow was thickest round the moraine slopes of Mt. Drygalski. There, in the shelter afforded by the curving hillocks, Johnny Abbottsmith opened his ski school. We all had a try at this sport, practising straight runs, kick turns and snow ploughs. Needless to say, the efforts of the tyro skiers afforded much amusement to the old hands. During the first day's practice there was as much sitting as skiing. Unfortunately, we were short of skis. Three pairs had been provided for the field men. There was none for the others, of whom four had brought their own skis. In the winter, when skiing was the only method of travelling round the island, this handicap kept them in camp, when they might have enjoyed recreation.

A toboggan was taken out to the skiing ground. There was a two hundred yards' run down the slope to the flat. The snow brought a new beauty to the island, and gave us our first opportunity to get away from camp for sport and real fun.

The early nights in May brought clear and starry skies. Mt. Olsen and Big Ben were visible, cold and white in the silence, clear all the night. The "met" flew a pilot balloon on the night of the full moon. For the first night they reported a cloudless sky. The weather could change suddenly. The morning might be quiet and windless. In the afternoon a cyclone would be blowing, accompanied by a slight rise in temperature. When the wind blew in from the south, the temperature dropped to 12 degrees below freezing. You could feel the bite in the air, right off the Antarctic continent, 800 miles away. Snowdrifts began to form round the

camp. They grew bigger each day. Garbage piles, timber dumps, oil drums, all outside, were hidden by the snow, which rose to the hummock tops, covering the yellow-green grass.

Under Abbottsmith's instruction, the tyro skiers made progress. Johnny ventured on the flat when 72 m.p.h. gusts were ripping round the camp. Holding a small red sail before him, he skied with the wind to Corinthian Bay. Before he reached the beach the wind whipped off his cap, carrying it out to sea. Another time, before the tractor was put away for the winter, he was towed across the flat, planing from side to side over the snow, as sportsmen aquaplane behind motor boats.

Taking a day off from science, Jo Jelbart went fishing at Cave Bay. He caught three small rock cods. Returning by SW Bay, he slipped on the rocks and fell into the water. He was carrying a rifle and had a pack on his back. The fishing rod was in his other hand. His waterproof trousers ballooned up, keeping him buoyant in the water. This saved him.

"I felt the cold water come up to my chest," he said on his return. "I grabbed at a rock, but my hand slipped. Fortunately, a wave broke and carried me back again." Grabbing some seaweed, he held on until another wave bore him to safety. It was only while walking two miles back to base that he realised how narrow his escape had been. He had been alone all day.

Future fishing excursions were made in the company of another enthusiast, "Shorty" Carroll. One day they caught thirty pounds of rock cod, enough for three meals for the whole party.

CHAPTER TWENTY

"THE EDGE OF THE MOON"

THE FIELD MEN returned to their camp at the base of the Jacka Glacier, to find their tent in good order. They explored the route along the beach, but the overhanging glacier made further passage too risky. Great boulders lay strewn over the narrow strip of land between the ice-foot and the sea. The men did not try to push further along the beach. While there might be another route to the end of the peninsula, it was pointless to take a risk when hundreds of tons of ice might fall down on top of them. Because of the recent falls off the glacier, the beach track was like a scree slope; a scree of ice on the surface. The men managed to penetrate along the coast to Black Cliff, a rock-face, falling one thousand feet in a sheer drop. A quarter of a mile away they found another limestone deposit, twenty feet thick.

The reinforced sleeping bags were an improvement. For the first nights they kept the sacks dry. Leaving camp early one morning, the men climbed for three and a half hours to the névé in search of a route to the west coast, from where they could make Red Island. When they reached the razor-back ridge, they found a sheer drop down the other side. It was more precipitous than other descents they had contemplated, so they named it Suicide Gully.

The men were disappointed. Compton, in particular, had carried a sixty-pound pack up the mountain's badly crevassed and obscure terrain. He suffered the final indignity of having the sweat from his forehead trickle down his face and freeze on his beard. However, the men made a round of angles from their high position, so the day was not lost. When they returned to camp at the base of the glacier, they

had a grand tea of Ovaltine, ham and pea soup, rice and apricots. They were dog tired, glad to roll in their sacks after the wearisome travelling over the soft snow and bridged crevasses.

Next day they transferred the centre of their activities to Windy City. On the way they passed an elephant seal which had been crushed to death on the beach by falling ice. They dumped the tent, heavy equipment and a small cache of food at Windy City.

Jim Lambeth had to return to base for a week's "slushee" duties. The other two carried on the survey work. They travelled light round the west coast, carrying only sleeping bags, rations, theodolite and subtense bar. Compton would write his diary up at night after the day in the field. He describes how they met the AA lava gullies:

May 5.—"Now on west coast of Cape Laurens. In the afternoon Bob and I took jigger (theodolite) three-quarters of a mile along the beach, about a quarter of a mile inland along the moraine. We decided to do what we could from the moraine, as the AA lava is no joke for travelling on. It is a peculiar lava formation, originally reported in Hawaii. The whole array is almost impassable, all gullies and hillocky ridges. We found a field in a flourishing condition, covered with poacookii grass—probably due to the tremendous macaroni rookery here a few weeks ago. Now it is deserted, save for a few dozen sheathbills. We are camped on a ledge half-way up the side of a thirty-feet defile. Snow has fallen to a depth of two feet, hiding pitfalls and gullies. Progress is not made in a straight line, but by a tortuous course, avoiding bad patches, often to be caught in far worse traps. Just a little way inland rise the bluffs of the sister aiguilles. A few moments ago these pinnacles were red and gold with the rays of the setting sun. Anzac Peak and Peak No. 1 showed up vaguely amid the mists. People pay much to see a lot less. Saw Bob's Avalanche Pass far below. It drops 1200 feet in three hundred yards."

May 6.—"Woke this morning and sang Bob the "Happy Birthday" song. He is 26 today. We had quite a long time last night while we lay in bed, heads out, pipes going, watching the stars. Weather was very mild, sleeping cover a bit cramped. Rolled up swags, breakfasted, walked to the edge of the moraine, where we'd left the jigger—alas, it had been blown over in the night. Great clots of snow whacking down, so returned to swag, sat under cover of ground sheet, smoking at intervals and as miserably as b——s. Decided to return to base. Left gear all wrapped up in oilcloth. On way back we skirted under bluffs and twice sank to thighs in a quagmire. One was a regular quicksand, snow-covered. Thus is added another danger."

That was their introduction to the lava gullies. Compton, Dovers and Lambeth really got to know them in the following weeks. Many lava tissues were snow filled. A heavy layer of snow lay over the gullies. The men did not know whether they were walking over fissures or on solid ground. Some gullies were iced over, wind-worn, their edges as sharp as knives. Crampons were of no assistance in such terrain.

At times the men's boots slide away underneath them. They gripped the sharp ridges with their gloved hands. Torn gloves and battered hands were better than sliding into the fissures. From the bottom of a gully, the men were surrounded by dull grey slopes, as though they stood in the middle of great slag heaps, seen round mining towns.

"Climbing up the sides of the gullies was like walking over the edge of the moon," Compton wrote. "Everything was grey and lifeless. It was like looking on a dead world. There were no birds there. The only sound was the noise of the sea and the wind."

The number of cyclones experienced in May pleased no one but the senior meteorologist. Gotley said the barograph had jumped around more in three months on Heard Island than it would in twelve years at any weather station in

Australia. One 60 m.p.h. wind blew up from nothing in half an hour.

"Doc" became O.C. elephant seals. He was asked by Expedition Headquarters to complete a census of all visible seals by the beginning of October. The instructions caused some amusement, reading like the orders of a desert sheik: "Number in each harem? How many bachelors?" Full particulars were required.

Gotley passed the request over to "Doc" while he was taking a shower. On his way out, Aub accidentally locked the "Doc" inside the hut! This time he was only imprisoned for half an hour before his yells brought release.

Pursuing his investigations of the elephant seals occupied the "Doc" for many hours. He read every scrap of information contained in the library. There were many interesting facts about the seals, but no vital ones. In none of the books was there any information dealing with their sex particulars. At that time we knew precious little about the seals at all. We were not sure of the different sexes, though we considered the bulls would be the ones with the trunk noses, some two feet long. To add to "Doc's" difficulties, the seals had migrated for the winter. Only one or two stragglers remained at West Bay. Atlas Cove and the area surrounding the camp were deserted. "Doc" was forced to appeal to Expedition Headquarters for additional information.

Life at Atlas Cove settled down to a routine. The day began at 5 a.m. when the duty "met" man made the first weather observation. Norm Jones was next out of bed, beginning in the cookhouse at 6 a.m., rising an hour earlier on the bi-weekly baking days. The duty radio operator was next up, according to the time of the first sked. This varied from 5.15 a.m. in the summer to 6.30 a.m. in the winter. The engineer rose at the same time as the operator, starting the Diesel a quarter of an hour before the radio sked.

The rostered man on "slushee" duty was called at 7 a.m.

to lay table and assist in the cookhouse. Breakfast was on from 7.30 a.m. to 8 a.m. No effort was made to raise the whole camp for breakfast. Late watchkeepers, sometimes on duty till 1 a.m. or 2 a.m., slept in late. In winter we found that men on shift work required nine or ten hours' sleep a day. Those arriving late for breakfast went without, or made it themselves. The late-night men generally stayed in bed till 10 a.m., when morning tea was on in the rec. hut. The "slushee" assisted in the cookhouse after breakfast.

Weather observations and radio skeds continued throughout the day. In the morning the geologist might be in his small hut catching up on his book work; "Doc" checking the ration lists in Admiralty hut. The "slushee" reported to the cookhouse half an hour before each meal. In the afternoon there was the daily radio-sonde balloon flight. The average flight lasted an hour and a half, but an hour's preliminary work was necessary to generate the hydrogen, test the transmitter, etc. After the flight, two of the "met" men were busy for an hour and a half on paper work, plotting, analysing the flight details. Balloon flights were cancelled only on account of unfavourable weather.

Afternoon tea was on in the rec. hut at 3 p.m. The evening meal was at 5 p.m. The men had finished in the cookhouse by 6.30 p.m. The evenings were free to all except the duty radio and "met" men. Changing hours of work meant that some men were in their bunks by 8 p.m. Off-duty men spent the time in the rec. hut, reading, spinning yarns or playing games.

Daily routine varied slightly on Sundays. Breakfast was half an hour later, and customers were fewer. The "slushee" became cook for the day; the new "slushee," for the following week, assisted. Norm Jones had the time off. At week-ends some excellent dishes were served by relieving cooks. Bob Dovers specialised in currant scones and bread; Fred Jacka made goulash. One was free to cook or serve anything to be found in the cookhouse. I baked my first cake at Heard Is-

land, and without exaggeration, I say every crumb was eaten.

Ice cream became a great favourite in the winter. After initial freezing difficulties had baffled the scientists, "Doc" revealed his true hand, having worked at a Melbourne ice cream factory during a University vacation. His experience was pressed into service. He became the final arbiter on all ice cream problems. The right proportion of salt to snow, numbers of turns to the churn, proportion of hot water to the mixture—all problems were referred to "Doc."

Library books were always in demand. We soon learnt which were the dull ones. They were left well alone. Popular books passed from hand to hand. In their spare time my companions showed a variety of talents. Johnny Abbottsmith knocked himself up a first-class wardrobe; Fred Jacka undertook repairs to wrist watches and cameras; Jim Lambeth made watch glasses; Norm Jones, unequalled with needle and thread, made shopping bags and beach bags from canvas and American cloth.

Compton and Lambeth were in camp at the foot of the Jacka Glacier. Bob Dovers was in our camp on "slushee" duties. Bad visibility hampered the outside work. A spring developed under the tent, soaking Lambeth's sleeping bag. Then men picked up driftwood on the beach, fashioning floorboards. While engaged in geological investigations, they noticed curious blue-eyed shags watching them. The birds were anything but shy. They readily approached the men, and only took to the air after being chased a long distance. Snow fell continuously; the temperature dropped, confining the men to the tent. When the weather broke, they continued the plane table work round the glacier. Still searching for the route to Red Island, they decided to climb the snout of the glacier, avoiding the dangerous ice-front overhanging the beach.

On May 16 they started for Red Island. The heavy radio was left behind. Each man carried a 60-lb. pack, the plane

table and alidade. They stumbled along the boulder-strewn beach, climbing up the glacier when the beach gave out. Crossing the ice, covered with an ice scree and deep snow, was exhausting. When they hit the beach again, they were surrounded with large pieces of fallen rock. At 1 p.m. they stopped half an hour for lunch, and found they had covered exactly one mile in a straight line! They dumped their packs and the nylon tent, and pushed on for another mile with their instruments, mapping until the light began to fail. They returned for their packs, pitching camp under the towering background of Black Cliff, NE corner of the Cape Laurens upland. Such was the murderous nature of the terrain, they had covered only two and a half miles. Their feelings were reflected in Compton's diary.

May 17.—"Very miserable as I write this at 9.30 a.m. During the night the tent pole slipped several times from its small niche, but we re-erected the pole. With snow and high gusty winds, it came down again. The airtight fabric shut off air circulation. Jim tried to light his pipe when he could not fall asleep. The match flared out. There was no oxygen: The tent finally came down on top of us. My breath came in great pants. I felt very cold, wet and confined. There was condensation inside the bag. Hardly slept much at all. Shoulders and leg muscles very stiff this morning. Can't lie and relax them; they just ache. We have had several tries to get pole up, but without success."

7 p.m., same day.—"Stayed in bags till 12.30 p.m., longing and trying to smoke in turns. Tent is going to pieces, but, as weather abated, we skinned out. We found a new camp site near a lake at the tip of the peninsula. Very rough walking about in the wind at 70 knots."

The men camped within sight of Red Island. They had reached their goal, but, wet through and tired, dispirited, with their tent torn, they were in little mood to shout of triumph. It would be hard to imagine a more desolate place

than their abode for the night. The lake, about two hundred yards in length, lay in the middle of an isthmus between Red Island and Cape Laurens. Sweeping in from both directions, the heavy seas had built up levees on either side. When the men reached the lake, the whole isthmus was obscured by clouds of flying spray. The roaring of the seas, the high moaning of the wind, low clouds, dark and menacing, barren rocks, cliffs towering above them—it was as forlorn a place as anyone could wish for.

The men found a beach, suitable for small boats, the first one round the peninsula. They collected driftwood, and with an entrenching tool they built a rough quadruped, lashing it together with cord. Over this they slipped the remains of the tent, weighing the flaps down with snow. It was only a crude shelter, but it protected them from the strong wind blowing in from the open sea. In the daytime they prowled round the beach, finding a small sealers' cave. Inside there were empty oil casks. Outside the entrance was an upturned boat, similar to the one found at Wharf Point. Rowlocks and oars lay under the hull.

In the desolate storm-wracked end of the island there was plenty to interest the geologist. On the west coast, on a point running two hundred yards out to sea, spanned on each side by a beach, Lambeth came across a spectacular rock formation. Waves broke through gaps in the rock headland like a Roman viaduct. The sea had worn through the rock columns, some of which were forty feet high. The waves swirled right under the point.

The rock pattern was a good example of what geologists call an "elephant's feet" formation. Along the point there was a lower stratum of basalt with a well-developed columnar structure, overlain by a very massive basalt.

The men found a beach strewn with spherical boulders, some eight feet in diameter. Others were six feet in diameter, rounded by the action of the sea and thrown on the beach in the great storms. Near Red Island the men saw

a perfect rock arch, underneath which the waves swept, like a bridge down to the beach.

At their camp beside the lake they buried a tin with a short note containing their comments, their names and addresses. They spent a day mapping and collecting rock specimens. During the night Compton's gloves froze as stiff as boards. They were running short of rations. Before they could return to base they had to return half-way to the Jacka Glacier, where they had dumped their heavy pack. Compton described the trip.

May 18.—"Not much sleep; aching all over. Went down coast this morning to get the gear up. How we got those packs up and down, around those slopes is a mystery beyond my simple mind. Jim slipped once and, being on a sixty-degree slope of ice leading down into the rocks, I had to work down beneath him and cut steps. There was a heavy sea running. He was very near a bath. Now wet and tired. Clouds are very low and work impossible. Heavy rain fell in the afternoon. We retired to the tent after picking some Kerguelen cabbage and killing a gentoo penguin. We cut the meat into cubes and boiled it for twenty minutes—a very tasty meal. Jim's cot very saturated tonight."

During the night the rain beat on the makeshift shelter, pouring in on the men, making their plight miserable. The moon rose at eight o'clock, but the heavy low clouds brought little light to the camp. The gaunt, dripping rocks and slushy snow-covered ground were not an encouraging panorama. They boiled a mug or two of hot chocolate, then set about strapping bags, pack carriers and rations for the trip round the west coast. Striking south-west, they were soon in difficulties in the lava gullies. They had traversed a mile of the moraine when Lambeth lost the sole of his left boot. Visibility was down to less than a quarter of a mile when they crossed the volcanic ash. To reach the west coast they had to climb up a 525-foot extinct crater near the ice-foot at the back of Suicide Gully. A deep layer of snow lay over the lava

gullies; some were bigger than any they had encountered before. Rain of the previous night had soddened the crust, giving the plodding men no support for their feet. They sank to their thighs and waists in the drifts.

Lava flows ran down like the spokes of a wheel from two extinct craters on the north-western side. Dull grey ground wherever they looked. They did not reach the cinder piles at the base of Suicide Gully until well into the afternoon, which meant they were travelling at less than a mile an hour. They found an emergency ration dump established on the west coast a few weeks previously. Here they brewed hot drinks and ate their rations—a tin of sardines, 2 oz. chocolate. Visibility was so bad Compton was unable to sketch any of the country. They halted for ten minutes before continuing their journey round the peninsula.

On May 13 the barograph in the "radio-met" shack began playing tricks. It took a dive to 28.2 inches. In less than forty-eight hours it had risen to 30 inches. Such rapid changes in the air pressure had only one meaning—cyclones ahead! So rapid was this rise, Gotley feared more 100 m.p.h. gusts were on the way.

However, this time something went wrong. In the rec. hut we had been laying bets on the speed of the highest gust—95 . . . 100 . . . 105 . . . or off-the-chart. To our surprise, the morrow was mild; a weak sun appeared for four hours. Heaters were switched off; snow dripped off the huts. The change came later, rain and mist shrouding the island, but still no wind.

A few nights later, being on the radio watch, I called the field party as usual for the 7 p.m. sked. Unknown to me, the men had arrived back in camp. In all innocence, I went on the air.

"Base calling field party. Base to field party," I droned into the mike. They did not come in, so I kept on repeating the call. While I was thus engaged, the hut window behind

me opened, and Compton poked his head inside, saying: "Field party to base. Field party to base. Reporting in!"

I had pictured them in their tent at the base of the Jacka Glacier. Of course, everyone was in on the joke, except me. They were all waiting outside the hut to see the expression on my face when Compton answered my call. They were not disappointed.

"Doc" caught a prion and took its measurements in the rec. hut. The bird was quite unafraid while he held it on the table.

Before the end of the month more cyclones swept the island, gusts of 75 and 80 m.p.h. being recorded. The wind whipped the surface off the ground, throwing it in heaps two and three feet high round the huts. Sand, gravel and snow. Windows were choked with dust. Grit splayed the roofs and doors. The pressure-tube anemometer froze up when the temperature dropped ten below. Carroll climbed the thirty-five-foot mast in the height of a storm, chipping away at the ice crust. He was aloft ten minutes, but pain in the hands caused him to descend. There was a danger from frostbite with long exposure.

Except for minor strains and stiff muscles among the tyro skiers, there was never a healthier bunch of men than those at Atlas Cove, and we started to chip "Doc" about his holiday.

One atrocious day we were sitting down to the evening when "Swampy" Compton burst through the door. Tired, dirty, with a heavy pack on his back, there was still a humorous glint in his eye, as he calmly told the cook: "Keep two dinners please, Norm. We've just come round the whole of Cape Laurens!"

Jim Lambeth came in a few moments later, fatigued and wet to the skin. They had been tramping all day in rain and snow over the ice and lava gullies. It was only when they were near base that Compton noticed his companion had

lost the sole off his boot. He had been hobbling along since morning without complaint.

"I'm going to have my first decent meal since I left here," remarked Jim, settling down to a plateful of piping hot whitebait patties and vegetables.

CHAPTER TWENTY-ONE

CYCLONE CENTRE

WHEN we had been six months on the island, there was no one in the expedition who doubted the meteorological handbooks that said we were situated in the most cyclonic region in the world.

Cyclonic storms appear in definite regions. In the West Indies, the Gulf of Mexico and the Southern Pacific they call them hurricanes; in the China Sea and off the coast of Japan they are known as typhoons. These names are all given to regions of low barometric pressure. The storms usually originate over the ocean, and normally keep to the ocean. If the storms travel from the ocean to the land, they soon lose their destructive force.

In the Southern Hemisphere these winds travel clockwise; in the Northern Hemisphere they travel in the opposite direction. Winds of force 12 on the Beaufort scale were frequently recorded on our station anemometer during these cyclones, though, speaking generally, the mean wind was force 9. The barograph pen drew sine curves on the drum chart. Often the barometric pressure fell below 28.5 inches, indicating that the centre of the cyclonic disturbance was passing near the island.

The radio link with Marion Island, and the weather reports received from South Africa and occasional ships at sea, enabled a close tab. to be kept on the movements of the cyclones which originated "somewhere in the South Atlantic." It was an unusual experience to be told thirty-six hours in advance that a cyclone bringing hurricane-force gusts was on the way! Estimation of the maximum gusts appealed to the betting instincts. The happiest people in the midst of

such appalling weather were the "met" fellows. Aub Gotley would look at the barograph above his desk, rub his hands and say: "Let it blow! Let it blow!" In June the Marion Island weather station reported gales and gusts reaching 98 m.p.h. The cyclone was thought to be heading for Heard Island. However, when the big blow reached us, comparatively speaking, it was a puff. Our highest gust was only 78 m.p.h. All the portents were there for the big blow, but somewhere over the ocean the path of the cyclone had swung south of the island. During one cyclone early in the month the barograph dived nine-tenths of an inch in twelve hours. The pressure fell below 28.5 inches, the steepest fall recorded ashore.

The prevailing wind at Heard Island was westerly. The approach of any cyclone was accompanied by a wind shift to the NE or NNE. A slight rise in temperature followed, with steady falls of snow or rain, according to the time of the year. If the centre of the cyclone passed north of the island, the wind would veer to the ENE. A north-easterly gale followed, accompanied by thick snowfalls. If the cyclone passed south, the south-westerly gales came screaming in. Whichever way the cyclone passed, the camp was assured of sweeping gales or blizzards. In the centre of a cyclone there is a comparatively calm region, only a few square miles perhaps, which the meteorologists call "The Eye." Sometimes after a blow there would be a calm, windless period of two or three hours round the camp. The barograph stopped diving and levelled off while "The Eye" passed. The air seemed warmer, but no birds could fly without the wind. They walked round the beach, or floated on the still waters of the Cove. The barograph began to rise, and then you could expect a sweeping wind. Sometimes three or four of these cyclones were recorded in a single week. In the middle of the passage of one cyclone in June, a radio-sonde balloon was followed to a height of 100,600 feet by the signal receiver. This was double the normal height of a flight. The extra

50,000 feet was of intense academic interest to Gotley in his investigations of the upper air.

Macquarie Island radio came on the air in the middle of May. We exchanged greetings with our colleagues there. Aub Gotley sent a cryptic message to Alan Martin, his counterpart, at Macquarie:

"We have 300 sewing machine needles. Offer you half for one machine."

In two days Martin replied—as we anticipated: "Will let you have one U.S. (unserviceable) sewing machine for 200 needles."

Macquarie had two sewing machines and no needles. Heard Island had all the needles and no machine!

The last aerial mast was erected. The "met" section moved their hydrogen cylinders into an annexe behind the balloon-filling hut. In summer it was all right to generate the gas in the open, but highly unpleasant in the winter snow and winds.

Abbottsmith and Lambeth were out in Atlas Cove in the dinghy when the water was calm. They made four trips along the coast of Cape Laurens, hoping to get ashore. Each time there was a surf off the coast. Near the overhanging glacier before Black Cliff, long icicles draped the rocks. The boatmen saw ice floating in the water off the glaciers.

The rockhopper and macaroni penguins had deserted their rookeries by the middle of May. The gentoos finally left Wharf Point and their other hide-outs. Only occasional stragglers were seen on the beach. The sixty brawling, biting elephant seals at Windy City had vanished.

Seeking to solve the mystery of the animal migration, "Doc" inquired from the South Africans at Marion Island. He asked them by radio if they had noticed any increase in their animal population. Their reply reported a similar state of affairs to those at Heard Island, though Marion Island had begun losing its penguins in April.

Information in our library on the migration of penguins was vague and unreliable. The "Doc" concluded that no one knew where penguins went for the winter. Did they migrate to the warmer waters round Africa and Australia? Did they swim thousands of miles, to return to the same rookeries year after year? We did not know. We could only wait and watch their return.

Gentoo penguins began returning to Marion Island in June. A month later the expedition there was eating fresh eggs for breakfast. At Heard Island they returned in large numbers in August.

The skuas left in May, but the "nellies" were always flying round the beaches, though their numbers diminished in winter. The prettiest birds to watch were the cape pigeons, their checkerboard wings and squat, stubby bodies flickering over the water. Terns, like flying darts, and black-backed gulls were seen all the year in Atlas Cove. Albatrosses were seen when we first landed. They disappeared before the end of summer and were not seen again until October.

As the days grew shorter, storms and blizzards became more frequent. Ground round the huts was covered with snow to a depth of several feet. Hummock tops disappeared, rocks vanished. Snow-banks were built up round the huts by the force of the wind. Some of them took attractive form—half-moons, semi-circles and straight deep ridges. The banks looked clean and pretty. When the weak sun appeared for brief moments, the white ground was a spotless, dazzling sheet.

On June 21 "Doc" and Fred Jacka made the first ski trip over the Schmidt Glacier. They went to examine the coast south of Cape Gazert for a possible route to the end of the island. They had their eyes open for an approach to Big Ben Peak. Both men were keen climbers and anxious to attempt the major ascent. They left camp at 7.15 a.m. It was still dark. The sun rose above Rogers Head as the men pulled the

bicycle-wheeled mail cart over frozen ground to the moraine at the base of the glacier.

The cart contained their skis and stocks, compressed food, a nylon rope, compass and cameras. They unloaded the cart, leaving it in the badly hummocked moraine. Carrying their skis and packs, they walked for an hour through the main snow-filled gully, forming a pass through the moraine. On skis they pushed steadily southwards, spiralling round the slope of Big Ben, but keeping the coast in view. They passed through powder snow and rolling folds of blue ice. The skins on their skis gripped the bare ascent though the gradient was not severe.

"At 11.15 a.m. we encountered an apparently very active glacier athwart our path," "Doc" related. "It contained enormous crevasses, five to six feet wide and forty to fifty yards long. The lie of the crevasses was parallel to our intended path. Without crampons or ice-axes, we considered it inadvisable to attempt the passage. The temperature was well below freezing. The snow-bridges were rock hard. In fact, it appeared there had been no thaw at this level, about 2000 feet, since March. The lips of the crevasses were sharp and angular. The crevasses extended down to the sea, so we turned and skied uphill to the northern limits, searching for a crossing. By 12.15 p.m. no crossing could be seen. Both crevasses and glacier became more and more rugged towards Big Ben. We halted for lunch, then turned downhill again, skiing along the border of the crevassed area."

The men failed to find a route over the dangerous ice chasms, but from their lunch-time vantage point they observed from 2500 feet what appeared to be a ridge leading to Big Ben. It extended from the SW corner of the mountain to the sea, but the badly crevassed area would have to be negotiated before the ridge could be reached.

When it was obvious no path could be found by the skiers, they turned down to the sea, returning to camp after a long traverse across the glacier.

"Doc" saw no beaches where elephant seals might lie. He looked for a distance of six miles down the coast. Through binoculars he sighted large white-pouted birds off the most distant cape, possibly albatrosses.

Corinth Head was a white hump against the rising sun. Golden rays spread over the séracs of the Baudissin Glacier, climbing upwards to the névé. The morning sky burnt a fiery glow. Big Ben was serene, clear, warmed by the yellow mist. It was the morning of the shortest day in the year, June 22. The rust of the sun broke through towering cumulus at 8.26 a.m. The sun rose only $13\frac{1}{2}$ degrees above the horizon, settling down in mid-afternoon at the end of Cape Laurens.

Heavy snow had fallen during the night. Rime clinging to the radio masts guys gave a Christmas tree effect. The drift outside the rec. hut rose to four feet. Long-handled shovels were necessary before Norm Jones could reach the cookhouse. Tracks between the huts were shovelled out, door entrances cleared. Oil drums were frozen into the ground. We used the tractor to try and lift them, but they would not budge. They had to be laboriously excavated. The sun appeared intermittently, a low-hanging, flickering orb in the northern sky.

Carrying water from the glacier streams in SW Bay had become a weekly chore. Finally the source was frozen solid. One day the tractor party arrived near the beach, to find the surf too high to allow a safe passage. Spray was shooting a hundred feet into the air over rocks at the western end of the beach. Waves bounced off the headland, rising in a great column, like a depth charge pattern fired at shallow depth. The surf bounced back, hitting the incoming waves with great force. The party could see daylight under the green waves as they collided and spiralled in the air. Big lumps of ice were strewn over the beach. A few seals were having the time of their lives, riding up and down with the waves.

On June 23 the barograph fell to 27.88 inches, the lowest

since the hurricane of the landing operations. Snow-storms blew round the camp all day. Progress between the huts became a dangerous business. Slippery drifts of snow and ice were treacherous for the feet. A 65 m.p.h. wind tore across the "Nullabor," blotting out the mountains and moraine slopes. The sky was a dark grey shroud over the white earth.

During low-pressure periods, the meteorologists were keen to send up their balloons. Data on upper-air conditions at such times would have been valuable, but the high winds made flights impossible.

During the month two members of the party received teasing telegrams about "Rita." Now, neither knew any lady of that name. For three weeks the identity of "Rita" was a mystery. Finally the matter began to worry the two concerned, so they sent telegrams home asking for an answer to the riddle. When the replies came, they were a surprise to all.

It appeared that in our absence Miss Rita Hayworth had been pictured in a magazine as the pin-up girl of the Antarctic expedition. That was the first we had heard of the matter! We did not have a single Hollywood pin-up in the camp. The deficiency was thereupon rectified by cuts from magazines, pasted on the rec. hut walls.

Dovers, Abbottsmith and Jacka made the first attempt to traverse the Baudissin Glacier from Corinthian Bay to Mechanics Bay, as a preliminary hop on the possible east-west route to Spit Bay. The party found the first hour of travel was easy going. They ran into difficult crevasses at the thousand-foot level. Some of the ice blocks were as big as two-storey houses. They were all shapes and sizes. Dovers was in front, but by noon their progress had become so slow that they had no chance of reaching their objective and returning the same day. Negotiating open crevasses took time. Cutting steps into the ice block took longer. Finally they ran into an ice ridge, steeper than the others. It would have taken half an hour to climb the obstacle. Each man carried a pack, but they were

travelling light. Around them the blue ice was the colour of a tropic lagoon. The men ate their lunch, but it was too late to go further. They enjoyed a smoke before turning for base.

In base, temperature fell to sixteen below. The wind swept in straight from the south, peaking gusts of 90 m.p.h. It was the coldest night we had experienced. Men not on night duty were soon between the blankets. Bed was the best place.

A startling change came the next day. The wind shifted to the NNW, bringing the warm northern air and sending the mercury up twenty degrees. I went with a gang to do a few clearing-up jobs on the beach. After many days in the huts it was a pleasure to be working in the fresh air. We packed and stacked tarpaulins which had been buried under snow, ice and gravel.

In the sky above the Baudissin a cigar-shaped banner cloud appeared. Smaller formations, stationary smoke-rings, floated at 8000 feet, like puffs from an active volcano. The amazing effect of the clouds alongside the enormous mountain was heightened by the clear blue sky. The clouds, known to the "met" as lenticular altocumulus, were caused by upward deflection of the air along the slopes of Big Ben. The formations were seen several times afterwards, but never accompanied by such a clear background.

Two small fires in camp caused anxious moments. One afternoon I was chatting to Alan Campbell-Drury in the sleeping hut when we heard yells from outside. Looking out of the window, I saw a great sheet of flame. It appeared to come from the balloon-filling hut. Fearing the hydrogen cylinders might have exploded, the two of us dashed out, picking up extinguishers in the porch. Outside, we could see the fire was coming from the small drying shed alongside the bath hut. Hessian bags, left there to dry out, had caught alight and smouldered for some time. When "Doc" opened the shed door, the inside was a mass of flames. For an hour we fought the fire with extinguishers and a bucket brigade.

Some extinguishers were useless, their contents frozen. Fortunately, there was enough water in the camp to supply the buckets until the fire was beaten. The other fire was a smaller one in the workshop. Abbottsmith quelled it with an extinguisher. After these experiences our fire-fighting resources were reviewed. Extinguishers were moved inside the huts to obviate freezing.

The field men left base in mid-June to clean up the final work of the Cape Laurens survey. They camped in the moraine hillocks near Suicide Gully. Lambeth again had bad luck with his boots, returning to Atlas Cove for a new pair.

Compton and Dovers continued the mapping down the west coast. The home-made tent was snug and warm, surviving the blast of the winter storms. They worked through the lava gullies, covering four and a half miles in three hours. This was the best progress they made.

One night Compton lay awake, shivering with cold. He tried to pass the time by smoking. In the morning he found his sleeping bag had frozen round him. In bitter winter weather they moved camp to the moraine below Sister 4. They surveyed this strip of the coast by subtense traverse. Compton would walk ahead for about half a mile to a convenient point along the coast, where he could build a cairn. Dovers, eye at the theodolite, watching his offside raise the ten-feet subtense bar, read off the angles. By a series of weird hand signals, the men communicated. Dovers would move Compton by signals to the right position for his shots. When he had finished, he waved his hands above his head for the "All O.K." sign. Dovers then joined Compton, noting the position of the cairn, while Compton walked another half-mile. Poor visibility and snow squalls hampered their work, but they made another camp beneath Avalanche Gully, in the centre of the mountainous peninsula. Compton, in his diary, tells how the last stage of the survey was accomplished.

June 21.—“NW Cape: Climbed over rocks and scree along coast, all well covered with ‘verglas.’ I was making a traverse across one place when I lost my foothold. I was left with two ‘pull’ handholds. Below me there was fifty feet of convex slope with no hand or footholds for fifteen feet. At the bottom was a palisade of jagged pieces of fissile trachyte, split by frost. I saw that if I tried to slide down the consequences might be unfortunate. I searched for additional holds, but found none. I tried to release my pack. It was no good. Finally I managed to drag myself up until my feet were level with my hands. I managed to get my toes into the holes, and pull myself to safety. I sat down, trembling for five minutes, quite sick. My underwear was soaked with sweat. It was my narrowest squeak yet. I arrived at camp after many deviations, due to the deep snowdrifts, frozen tussock and uncertain footing. The tent is in fair order, though tears have developed. Snowdrifts are all around us. It’s dark just after 3 p.m. Very cold. Snow falling, with a whispering wind.”

June 22.—“Up at sparrow bark. Off at 7:45 a.m. towards Cone Trig. The moon was still up and bright. The hummocks are very slippery. Recent snowfalls make them murderous. Took two hours to cover distance normally done in one hour. Jim Lambeth got himself in a similar position to me on the cliffs. After a while I managed to climb down and give him a foot to grab. He had climbed up the tussocks which, in the conditions, was the worst path he could have chosen. Lunch was interrupted by a high wind with much snow. Returned to tent under very bad travelling conditions. Visibility was so poor, it was difficult to find the camp. Found my trousers were frozen to the waterproof outers. Baro. at 4 p.m., 28.76 inches. Bed warm, wind gusty. We decided to return to camp, as there are a dozen holes near the snowflap, one about ten inches long.”

June 23.—“Arose at 5.30 a.m. Dark as Hecate and blowing in no mean order. Packed sleeping bags, geological equip-

ment, surplus rations and set off at 7.30 a.m. The tide along the coast was high, with a big surf running. Ground frozen, same miserable appearance. Took three-quarters of an hour from Windy City to base, arriving at 1 p.m. dead beat. Staggered in; just did not know how I could do anything. The finish of Cape Laurens."

It had taken the three men almost three and a half months to cover an area of fifteen square miles of country. Even men used to such harsh conditions would have found the job a hard one.

CHAPTER TWENTY-TWO

WINTER

THE COLD GRIP of ice and snow tightened round the island, filling in the hollows and blanketing the bare rocks with a white coat. Blizzards occurred two or three times a week, hampering movement round the camp and putting field operations out of the question.

Rime clung to the aerial guys, and formed on the eaves and gutters of the huts. The food dumps were buried under several feet of snow. It was a hard day's work for half a dozen men to dig out the wooden cases. In order to save this labour each time the dumps had to be broached, the cases were stacked on top of each other, as in a store-house. They were piled six feet high and covered with tarpaulins. It was then only necessary to dig out a corner of the tarpaulin to gain access to the snow-house.

Rain was something we forgot existed. We obtained water for the cookhouse by melting snow in the oil-drum stove which the engineer had made. Melting snow was the "slush-ee's" job, and it was a tardy one, too! One morning Bob Dovers worked flat out and obtained forty gallons of water for the cookhouse. Ten buckets of snow produced one bucket of water, so there was much shovelling to be done. The process was simplicity itself. You just went outside the bath hut and shovelled the snow into the open drum, beneath which an oil fire blazed.

Hot water became so plentiful on these occasions that some of the men were taking shower baths four or five nights a week. The hot showers were one of the few pleasures of the winter months when we were all in camp. Only a lucky few were able to get away ski-ing or fishing. You might plan

to leave camp for a day, but when your spell came due, a blizzard would drive you to the ever-waiting bunk.

A severe frost cracked one of the metal "furphies" which we had used to bring the glacier water from South-West Bay. While assisting with work on the tide-gauge, "Doc" fell off the plank bridge into the frigid water. He ran straight back to camp, shivering, and, after a hot meal, went to bed. In the morning he was suffering from frostbite on the legs.

Round Atlas Cove the snow lay thick to the water's edge. Stones and boulders at Wharf Point were covered in ice and frozen spray, which glinted prettily in the rare sunlight. Oil drums vanished under the snow, which lay everywhere. The morning glare off the white "Nullabor" made you shield your eyes if you left base without polaroid glasses. The skiers said the sastrugi formations on the "flat" took the speed out of their runs. No matter how bad the blizzards, meteorological observations were made at three-hourly intervals from 5 a.m. till 11 p.m. daily. Often the men found the beehive instrument screens coated in snow and rime.

When the snow was flying round the camp in a great white cloud, it was difficult to see the screens at all. They had been secured as firmly as possible, the legs being set in concrete and the corners guyed to the ground. Even so, the screens vibrated in the high winds.

Though satisfactory results were obtained from the instruments, considerable difficulty was encountered maintaining them in operation. Frequently the Dines anemometer was out of action, due to freezing round the suction holes, and the pressure tube being blocked with snow. Ten per cent addition of glycol was not enough to prevent water in the float tank from freezing. When the air temperature dropped ten or more degrees below freezing, the water-glycol mixture became slushy. If it had frozen solid, it would have crushed the tank, ruining the instrument.

In the "radio met" shack the barograph chart had been recalibrated half an inch lower after the experience of the

hurricane in December, 1947. Otherwise, the pen-arm would have left the clock drum on several occasions.

A mercurial barometer was set up in the shack away from the stove. There was also an indicator panel for the electric up anemometer, but sea spray corroded the outside contacts, throwing the instrument out of action. However, while the Dines was working, the other anemometer was not needed. It had been supplied in case a second "met" station was set up at the other end of the island.

The Stevenson screen nearest the shack contained wet and dry-bulb thermometers, for lining up the radio-sonde transmitted with surface conditions before each balloon flight. An electric fan in the screen was used to aspirate the instruments. In the second screen, thirty paces away, there was a thermograph, a hair hygograph, three wet and dry-bulb thermometers and maximum and minimum thermometers. Attempts to obtain maximum and minimum wet-bulb readings were abandoned when the temperature fell below freezing. The water reservoirs for the wet-bulb thermometers cracked in low temperatures. Gherkin bottles were substituted. Three-quarters of an hour before "obs" time, the muslin cover over the wet-bulb thermometer was moistened with ice-cold water. This method was found to give satisfactory results.

Snow particles penetrated the hygograph and thermograph. Carroll, the observer, designed fine-mesh gauze covers for the instruments. Owing to the terrific gusts, the hygograph drew a trace more like an anemometer. Exposed parts of the thermograph were corroded by salt spray and the moving parts froze. Under the gauze covers the instruments gave responsive traces.

The spirit thermometers tended to read low during cold periods. Later, when the electric power was switched off at midnight, water in the pluviograph tank froze. A 60-watt globe had been burnt to keep the tank warm.

Our meteorological station served as a testing ground for

much of the equipment. Lessons were learnt which will be useful when a station is established further south. Two sunshine recorders were used, being orientated so that a full record of the longer daily sunshine was obtained in the summer. A cup anemometer, for measuring the daily wind mileage, completed the meteorological equipment. Throughout the winter all types of snow were experienced—soft snow, needles, granular, hail, frozen rain and large flakes. Unfortunately, the snow gauge was frozen underground for many months and was only found when the thaw came in October.

Campbell-Drury, Macey and Compton left base one morning, while it was still dark, to retrieve the tent and odd gear left by the field party at NW Cape. Campbell-Drury took his cameras in his pack. The day was grey, with frowning clouds, but little wind. Following the field party's track along the west coast, the trio reached NW Cape at 11.30 a.m. Campbell-Drury produced a bottle of beer for lunch—such a rarity that his companions rubbed their eyes in wonder. They dawdled over lunch, packing up the gear. Campbell-Drury opened his pack to take pictures and found the back of the film magazine had become loose, exposing all his film.

It was 12.45 p.m. when they started on the return journey. They had cut the time rather fine, allowing themselves little more than three hours to reach base before darkness. A NE wind blew up. Heavy snow began to fall. None of the men had reached base by 5 p.m. and we began to worry. We feared they might have found the going too hard in the lava gullies. Abbottsmith and Dovers prepared the tractor to go to Windy City to give the men a lift home round the bay. We were sitting in the rec. hut waiting for tea when the door burst open. Macey staggered in, looking haggard and exhausted.

"Give me a glass of water," he gasped, collapsing in a chair, wet to the skin.

"Doc" was soon on the scene, but there was no cause for alarm. After a few minutes' rest Macey told a coherent story.

"The others are all right. They must be nearly at Windy City. The going over the lava was terrible! The edges of the gullies were frozen and as sharp as knives. It was impossible to keep a footing on the slippery surface. We went in up to our knees."

When the men had realised that time was slipping by and they might not reach Atlas Cove before dark, they had decided that Macey should go on ahead by himself. Campbell-Drury was tired and Compton thought it would be better if he stayed with him. However, the strain told on Macey before he reached camp. A blizzard was sweeping across the "Nullabor" when he rounded West Bay and came to Windy City. He dumped his pack on the beach.

"I'd never have made it otherwise," he said.

Walking round the beach, Macey stumbled over the washed-up ice blocks, and in the poor visibility, twice wandered near the water's edge. Everything was blotted out. He steered along the beach, cut across to the camp, but did not see the lights of the huts until he was almost up to them.

The other two arrived just as the tractor party was leaving for Windy City. Compton was cheerful, showing less signs of fatigue. Campbell-Drury was wearing flying boots. One had worked loose. Every time he became bogged in the snow-drifts, his foot came out without the boot! The others had icicles on their beards and sore frost-bitten cheeks.

After a day's rest, none of the men was the worse for their experience.

On birthdays there was always a special celebration in the rec. hut. Norm Jones would make a cake. Amid much buffoonery the one candle would be blown out, and the cake cut, generally with a machete—though that was no reflection on the cake!

On July 6 we were celebrating Compton's birthday when Macey, who had been on radio watch, came into the hut, white-faced and anxious.

"There's been a fatality at Macquarie Island," he told us. "Charlie Scoble was ski-ing. He fell through ice and was drowned."

Scoble, the engineer in the other party, was known to all for the assistance he had given at the Tottenham Depôt when our stores were higgeldy-piggeldy. He had straightened out many a problem for us. The news of his death was a shock. We stood in silence for one minute for our comrade. We sent a message of sympathy to his widow.

The "met" section reported that the June weather was the worst we had experienced. There were cyclones on eleven days in the month, each one accompanied by gusts exceeding 72 m.p.h., the hurricane force. On twenty-three days in June the wind reached gale force. Invariably during the hurricane gusts the aërials were brought down. The problem was partly overcome by using telephone wire for separators, and sagging the flat-tops. This reduced the number of times the antennae had to be re-rigged.

In his geological investigations, Jim Lambeth confirmed the presence of large quantities of olivine on the "Nullabor" flat. The yellow-green traces could be seen in almost every rock.

"If it was anywhere but here, it might be worth money," Jim remarked.

Olivine is used in the heavy industrial production of furnace linings and fire-bricks. Round Windy City the geologist found many rocks with flat, clean surfaces, caused by the incessant action of wind-borne sand and gravel. The rocks were concentrated in the funnel area between Windy City and the moraine hillocks skirting Mt. Drygalski. Some stones were bevelled as flat as the ground, edges sharp as slate. The exposed rocks here had suffered from severe frost action, being broken into angular fragments. At SW Bay, near the Schmidt Glacier, a tremendous boulder was poised a hundred feet above the sea on the moraine. The geologist esti-

mated the weight at about a thousand tons. Centuries ago the boulder had been above the glacier. It had been brought down by the glacier movement and dumped where the ice melted. Many boulders lay nearby, but there was none to approach this huge one at Erratic Point.

In his study of glaciology, Lambeth had to take samples of snowflakes—before they reached the ground. Jim would stand outside his small hut, slide in hand. When he caught a flake, he turned quickly inside and whipped the slide under the microscope. Before he had time to note the crystal formations of the flake, it would have melted on the slide. He overcame the problem by devising an ingenious refrigerator from a small copper tube and tobacco tin. The tube was placed inside the tin, packed with ice and salt. With the slide resting on the tin, the geologist was able to study the flake for half an hour before melting occurred. When I looked through the microscope, the snowflake glittered like a brilliant sapphire or topaz. Some flakes were uniform hexagonal shapes, six-star shapes or solid six-sided columns, though the sides, of course, were only a one-hundredth of an inch long.

In July the word "blizzard" became a common entry in the expedition diaries. The peak was reached on July 14, when the wind was due west. After gusts of 80 and 95 m.p.h. had been recorded, a gust of 100 m.p.h. shook the anemometer mast at 7 p.m. The snow very thick, both drift and falling. It was impossible to face the blizzard and walk round the huts. It hit you in the face like a heavy damp rag, penetrating under the hood of your windproof, soaking the back of your neck. We retreated to the safety of the rec. hut to "sweat out" the evening, reading or playing cards. By 8 p.m. the anemometer mast still quivered to the tune of the 100 m.p.h. gusts. Those watching the anemometer chart in the survey hut felt the floor and walls shaking, as if the earth moved. At 8.55 p.m. the pen-arm nearly jumped the chart. It swung up to 108 m.p.h! As soon as the gust had swept the camp, the wind dropped to four m.p.h. The "met" section thought the gust

might be the highest one recorded by a land weather station at sea level. All evening showers of gravel, snow and ice pellets pinged off the hut roofs like pellets from a shot gun. Moving around outside, you had to crouch round buildings or beside the shelter of the snowdrifts as the big gusts raced past. The radio masts moaned. The drifts outside the cookhouse rose roof-high, and the windows of the rec. hut were below "snow-level," like the lower portholes of a ship in a storm.

I had my second turn on "slushee" duty in July. Absence of flies, cockroaches or insects made the task a lighter one than might be thought. Butter, jam and other food could be left exposed indefinitely in the cookhouse without fear of the contamination experienced in civilisation.

While the field men were base-bound for the winter, they continued their individual jobs. Dovers and Compton worked on the survey map, checking their field calculations; Lambeth worked on his specimens and the geological map. If the pages of a novel had been torn from their binding and scattered round the island, it would have taken time to put the story together. The geologist's job was like this. Each specimen he collected was another page in the geological story of the island. Many specimens had to be microscopically examined before their story could be read.

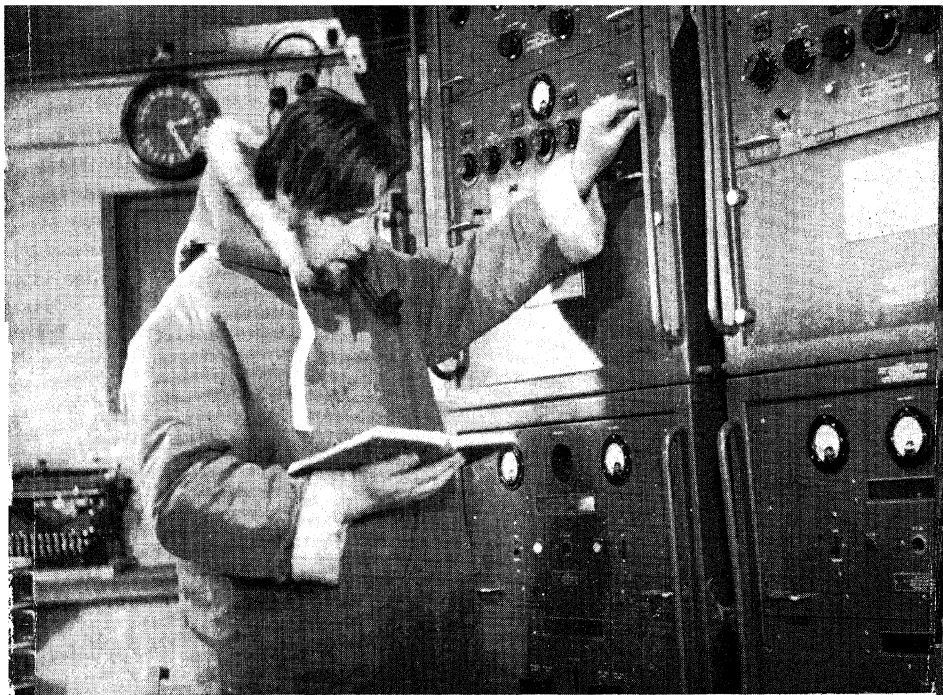
An outcrop of folded limestone, the oldest rock on the island, stretching two miles from West Bay to Suicide Gully, was the basis of the geologist's investigations. The limestone had been folded and pushed up by vast earth movements. The junction between the limestone and the next layer of rock had been smoothed off on the top by erosion. The next layer was between 1200 and 1500 feet thick. Lambeth called it the Drygalski agglomerate. He believed it to have been formed in shallow water, similar to a continental shelf. Scratched pebbles and lava lumps in the agglomerate indicated that great freezing and volcanic actions had occurred

simultaneously. After investigating the Mt. Olsen trachytes, which were up to 1,400 feet thick, Lambeth concluded that the island had been strongly glaciated during the Pleistocene age, between 100,000 and 200,000 years ago. There was no reason to think the island had not been glaciated ever since. In the course of time the island became unstable. A fault developed which split Cape Laurens in two to a drop of 1400 feet.

The geologist found evidence that the whole island had once sunk by 500 feet. The land mass was overloaded, probably by the action of many volcanoes, which left the AA lava round Cape Laurens, the limburgite at Rogers Head and the basalts at Cape Gazert. Since then there had been a small retreat in the glaciation of the island, possibly within the last centuries. The Nullabor had once been covered by a glacier. Big Ben Mountain had been built to its enormous size by constant volcanic action.

The home-sewn tent, which had done such good service round Cape Laurens, was now torn and useless. The field men began sewing another one for the summer operations. The new tent took ten days to make, and was of a similar pattern. The sides were slightly longer. Minor modifications were made to the snowflap and the funnel entrance, in the light of the men's experience.

Lambeth and Abbottsmith had become expert with the motor dinghy. Whenever they received a favourable weather forecast, they were out in the boat. While Dovers and Compton climbed to the top of Mt. Drygalski, carrying a theodolite and a radio, soundings were taken in Atlas Cove by men in the dinghy. I accompanied Lambeth and Abbottsmith on the first soundings trip. Lambeth stood at the bow with the lead-line. As he threw the line into the water, I raised an oar in the middle of the boat to a perpendicular position. A small red flag was tied to the end of the oar. The men on the mountain top, looking through the theodolite, marked the



Top: The author tuning the transmitter in Radio Shack.

Bottom: The Fourteen Men—Back Row, left to right: Dovers, Lambeth, Scholes, Jelbart, Jacka and Macey. Front, left to right: Gilchrist, Jones, Campbell-Drurv. Carroll, York, Gotley, Abbottsmith, Compton.



Top: Blizzard sweeps Atlas Cove Camp.

Bottom: Shorty Carroll getting the balloon away—Radio Tower in right-hand.

Choosing a calm, windless day—they occurred about once a fortnight in winter—Lambeth, Compton and Abbottsmith went in the dinghy to the extremity of Cape Laurens. In an hour's cruise they reached Red Island, which had taken them weeks to reach overland. One part of the journey was only a twenty minutes' trip by boat, but seven and a half hours' climb over the land.

Over the radio the news was: "An R.A.A.F. Catalina fitted with jet-assisted take-off units will leave Melbourne for Hobart with the leader of the Antarctic Expedition, Group Captain Campbell. The plane will stay at Hobart until the weather permits a flight to be made to Macquarie Island, where an engineer will be landed."

Each day we listened for news of the plane flight: "Campbell still at Hobart waiting for the weather. . . . The plane would return via New Zealand. . . . It would carry 100 lb. of mail for the Macquarie Island party." How the last remark made us envious!

But there was further radio news about Macquarie: "The men on the weather station may receive visitors during the year. A visit is likely from a French expedition, going to Adelie Land at the end of the year. A New Zealand ship is to call at Campbell Island and other southern islands. Macquarie Island may be included in the itinerary."

The comment which followed the reception of this news in the rec. hut embodied many viewpoints.

"Those bloody blokes don't know what it is to be isolated!"

"I'll bet you they get home before we do!"

"They can have their French boats; there's only one I'm waiting for."

"Well I wouldn't mind staying here another twelve months; it'll do me."

"The trouble is some of you blokes can't take it. What did you come down here for?"

Marion Island reported a bad storm at the end of July.

Enormous seas pounded the beaches, wrecking stores and huts. Building materials, rafters and a large part of the paraffin supplies were lost. The passing of the cyclone had a happy sequel. Owing to the damage, we heard the South Africans were to be relieved at the end of August.

Thirty-six hours later, when the cyclone hit Heard Island, its strength was less than we feared. The wind blew all night, peaking 70 m.p.h. It swung round from the NE to SW, but the "eye" of the cyclone had passed several hundred miles to the north.

When the drift snow blew round the camp, it flew past in thick, heavy showers. If the sun was shining, the drift was like a fast-moving silver sea against the white ground. It rose in waves towards Rogers Head, an endless tinsel ocean. If the blizzards came at the week-ends, they never worried Norm Jones. He retired from the cookhouse on Saturdays, and went to his bunk for the week-end, a packet of sandwiches and chocolate on the shelf above his head. He rated the blizzards by the books he read during the week-end. The worst ones were the "three-book" blizzards.

In June, Jelbart and Jacka, the cosmic ray physicists, had taken the whole of their intricate apparatus to pieces, rebuilding the electronic circuits. Results had been recorded since April, but the circuits had been found insufficiently stable for reliable operation. There had been frequent circuit breakdowns, due to changes in the characteristics of the components, chiefly the valves. The mechanical counters did not possess the life they were expected to have. Repairs were often necessary. These difficulties caused gaps of twelve hours in their records, but otherwise the apparatus was in operation day and night.

It was a fortnight's job to rebuild the main parts of the apparatus. The immediate results were more promising. In the apparatus the meson components of the cosmic radiation were separated from the electrons, protons, etc., by allowing them to pass through a ten-centimetre block of lead

before being recorded. The lead block acted as a filter, allowing only the mesons to pass. After three months of the new circuits, some worth-while results were achieved. In a preliminary analysis the physicists estimated the degree of correlation between the cosmic radiation and the pressure and temperature of the air. This analysis showed there was a marked relation between the cosmic ray intensity and the pressure, but a less marked relation between the intensity and the temperature. An increase in pressure of one inch of mercury caused a decrease in the total intensity of the cosmic radiation of 8 per cent, while the effect on the meson component was about 5 per cent. About seventy-five per cent of the total cosmic radiation was found to be made up of the meson component. It was expected that these figures might be modified after a more thorough analysis of the results on our return to Australia.

Their set of measurements was the most extensive yet made in such a southern latitude by an expedition. Both scientists were satisfied. The hard work they had put into the construction and maintenance of their equipment had been rewarded. When either of the physicists visited the "radio-met" shack to note pressure changes on the barograph, he would return to the cosmic ray hut with a fairly accurate idea of how this had affected the count of the mechanical counters in their apparatus.

The relation between the cosmic radiation and the air pressure was only found after weeks of exhaustive calculations, in which barograph changes and cosmic ray intensity had been checked back, over every hour, since the apparatus began recording in April. The correlation was continued throughout the year.

We followed all news bulletins about Macquarie Island with great interest. They differed each day: "The Catalina plane is still waiting at Hobart." . . . "The plane left last night for Macquarie Island with a relief engineer." . . .

Finally we heard the plane had returned to Melbourne with engine trouble, after standing by for a week.

The last week in July was the blackest week, literally, in Atlas Cove camp. Because of a shortage of spare parts for the Diesel engines, power rationing was introduced. Coming in the depth of winter, the restrictions were a damper on many activities. One Diesel had been placed out of commission to keep the others running. The Diesels were run for the radio skeds with Sydney; the rest of the time the camp huts were illuminated by hurricane and pressure lamps.

The lamps illuminated only a part of the huts. The light was a trying one to read by, and made the evenings seem longer and gloomier than ever. After a fortnight it was realised the restrictions were too severe. The problem was referred to Expedition Headquarters. Finally a compromise was reached, power being shut off between midnight and 6.30 a.m. This was a more popular arrangement and caused no interference with the evenings, our main leisure time.

One morning during the power restrictions, when the sleeping huts were without the electric heaters, I got up at 6 a.m. for the early radio watch. The huts felt freezing. I dressed as quickly as any fireman ever answered a call. Opening the verandah door, I peered outside, to be confronted by a solid white sheet. It was as though the world outside had disappeared, a white blank space substituted. I could recognise nothing. The glare of speeding snow hurt my eyes. Head buried low to my chest, I crouched my way round the huts to the shack. New drifts had arisen over the familiar route, and I was slipping thigh-deep in snow before I had gone five yards. By the time I reached the shack, I resembled a snowman. I had been down twice, and had slipped entering the porch.

The blizzard blew until the middle of the afternoon. The

wind was from the NE, with a diving barometer. It was always the north-easterly that brought the worst snow. The drifts piled up round the huts, blocking the doors, choking the windows. In the cookhouse it blew under the back door, filling the porch to a depth of several feet. It was just possible to see one hut from the next. Nothing more. If you turned into the wind for a brief moment, the hood of your anorack filled with drift.

The barograph fell 1.3 inches in twenty-four hours. It fell for two days. By 3 p.m. of the next day we assumed the pen-arm would leave the drum. Instead, it began to climb as the cold front passed through. The wind switched to the SW, and a whistling hurricane was blowing round the camp—exactly the opposite direction from the preceding blizzard. Snowdrifts built up the previous day were blown back to where they had started. The south-westerly drift was faster and thinner than the blizzard. In the middle of the hurricane wind the sun peeped out, a low ball in the northern sky. It shone on the silvery drift racing up the hill to Rogers Head. The drift appeared to travel over the ground at enormous speed, like smoke-trails of planes in the stratosphere. The drift formed small sastrugi on the "flat."

During the height of the storm the lid roof of the "radio-met" shack was nearly sucked out. Keith York scrambled on top of the filing cabinet, holding the lid down from the inside. Gusts of 80 m.p.h., and hailstorms were sweeping past the shack, when Macey climbed on the roof with a hammer and nails. In a few minutes he made sure the roof would not move again in any kind of a wind. By 4 p.m. the anemometer had recorded several gusts above 100 m.p.h. The mean wind exceeded force 12. The highest gust was 106 m.p.h. That night, while the wind moaned through the aerals and radio masts, a happy event was celebrated in the rec. hut. Fred Jacka had learnt by telegram that he was the father of a seven-pound son.

On the beach at Atlas Cove a sea leopard carcase had engaged the attention of the "nellies." "Doc" decided this would be a great opportunity to make a closer study of the characteristics of these birds. Crawling on his hands and knees in the snow, "Doc" sneaked up on the birds, like a stalking red-skin. "Nellies" were picking the carcase; others, gorged to capacity, sat in the snow nearby. One bird, becoming suspicious of the "Doc's" movements, attempted to take off. Some days the birds needed a long run to become airborne. This was one of those days, but the unlucky "nelly" ran straight in the direction of the waiting "Doc." He sprang at the bird, gripping it round the neck. While the bird thrashed its wings and pecked his gloves, the "Doc" maintained a firm grip. He carried the bird up to medical headquarters for examination. There was the look of the devil in the "nellie's" eye when his legs and wings were trussed up. "Doc" held the beak while the bird was put on the scales. It weighed 11 lb. 8 oz. His wing-spread measured 6 ft. 8 in. If looks could kill, the "nellie" would have murdered "Doc." However, after "Doc" had made a few notes, the "nellie" was given his discharge, and soared off into the freedom of the skies.

On August 4 another blizzard confined everyone to the huts. At night the radio briefly said the Catalina flying boat had finally reached Macquarie Island with the relief engineer.

CHAPTER TWENTY-THREE

TALKABOUT

“WELL, you blokes, who’s flying tonight?”

“I’ll dual on Libs.! How about the others? What, no takers!”

The scene was any Saturday night in winter in the rec. hut. The conversation had become a weekly joke. Over friendly glasses the tongues wagged, and out rolled the war-time experiences. The battles were fought again and again. The deeds of the airmen eclipsed the imagination of a Hollywood producer. The Middle East, New Guinea, Bougainville—the stories were recounted until the listeners knew every shot the enemy had fired.

The flying was the most entertaining. When the glasses had been charged with the beverage for the evening, the conversation would begin:—

“By the way, did I ever tell you of the time . . . ?”

One story would lead to another. Invariably one of the ex-members of the Air Force would join in with a thrilling anecdote.

“That reminds me of the time when a squadron of Bowies was strafing Jap. shipping. . . .”

And so it went on. The rec. hut resounded to the whine of falling bombs, throbbing motors on the tarmac, and the zooming of diving planes. As the hours passed, so did the contents of the bottles down the throats of the thirsty listeners. On Saturday night, when there was a special grog issue, the gathering sometimes continued until the early hours. Outside the hut the temperature was low, but inside it was thick with the smoke of pipes and cigars. The smoke of bat-

tle. Planes flying on one engine, or even backwards, evading the pursuing enemy.

If the tales were too far beyond the realms of possibility, the teller would find his audience juggling imaginary joy sticks, the shattering roar of vocal engines swelling from their mouths. Sometimes the gathering would break up in fits of laughter when a man, with arms outstretched, banked and dived round the hut to keep pace with the aerobatics of the storyteller. There was never a dull moment. If war stories were not being hurled across the hut, the subject was invariably one of three: "A woman I knew," "A bloke I knew," or "When I get back." They were pleasant evenings, when it was impossible to move outside and when time began to drag. The company and fellowship of the rec. hut filled the lonely gap inside every man.

In August the gentoo penguins returned to the site of the old rookery in West Bay. There were only a few, the vanguard of the thousands to come two months later. The early arrivals prodded the snow and tussock with their beaks, scratching around for nesting places. They climbed up the side of the mountain, standing one above the other, like little old men at a football match. When the birds came ashore from the surf, a great cry of welcome greeted the newcomers. Most of the birds soon paired off, but the newcomers approached the single birds. The penguins faced each other and bowed, rather like Frenchmen greeting each other. They stretched their necks in the air and bowed together, beaks open. Sometimes a penguin would bow, but the other would disdain the proposal, hastening the suitor away with vicious pecks and cries. Even after two birds had paired off, an interloper might have the audacity to approach, and woo the female bird. He received short shift from the home-builder, who chased him round the rookery. The penguins went to no end of trouble to preen themselves for the benefit of their mates. All the way to the rookery they would stop and look

themselves over. When satisfied, they went forward to meet their match. A constant procession came up the beach at West Bay while I watched. They were bobbing ashore like tourists. How far had they come? What instinct guided them to the lonely beach? Did they follow the warm and cold currents of the ocean?

In the same month the first pair of black-headed penguins was seen at Wharf Point.

August was our coldest month, the mean temperature being five degrees below freezing. The island was ten degrees colder than the average temperature experienced at the Macquarie Island weather station between 1912-15. The fact that Macquarie was a degree and a half south of Heard Island indicated that we were more subject to the influence of the Antarctic weather. It was interesting to observe in the tables compiled by our "met" section how the maximum and minimum temperatures varied throughout the day. Often the maximum temperature occurred at 2 p.m., depending upon the influence of the tropical or polar air masses. A typical instance of this movement of air masses happened at 11 p.m. one night. The wind SWS, snow falling, clouds low, and it was cold, too. A typical winter evening at Heard Island. Within half an hour the wind had swung to the NE, the clouds had risen and the temperature was five degrees higher.

For several days we experienced temperatures twelve degrees below freezing. On August 10 meteorological records were broken. The maximum temperature was 21 degrees, the lowest for the year, and the sunshine recorder showed 6½ hours' sunshine for the day, the longest daily period till then. It was a day without equal. The anemometer chart registered "No wind." The air was literally like champagne, sparkling and clear. Everyone who could get away from the camp went ski-ing or walking. The cloud-free blue sky gave no impression of the low temperature. I borrowed a pair of "bear-paws" (snow shoes), and tramped over the snow to

SW Bay. It was like walking on a pair of tennis racquets. You had to remember to take long strides, else you tripped over the shoes, but it was easier than I had thought. Instead of slipping knee-deep in the snow, you were walking on top of the surface, making progress simple. I walked to Erratic Point, where there was a clear view of the white mountains up and down the coast. Behind me the Schmidt Glacier was a cluster of blue sérac ice where it fell into the sea. Sea leopards and penguins sunned themselves on the white beach. At sea the McDonald Islands were like an iceberg, with its satellites, white racing yachts in the blue Mediterranean.

At night an aurora was visible in changing colours from midnight until 5.30 a.m. It was seen on the following three nights. The cosmic ray scientists were up for long periods, noting the structure, the rays, arcs, draperies, bands and the coronas. Other relevant details, such as the altitude and bearing of the centre, and the ends of the patterns were entered in the auroral observations. One night Carroll saw the aurora moving as a grey spiral over to the east.

The resulting interference played havoc with radio communication. For ten days the messages piled up on the operating desk, while a mushy background blotted out all signals.

On the coldest day we had twenty-four degrees of frost. The cold was not uncomfortable or severe, but the blizzards made the winter period a trying one. So many days passed without a glimpse of the sun, the effect was depressing. It was difficult for the shift workers to get away from the camp. We worked varying hours, but there were skeds and observations to be maintained. It was not always easy to sleep in off-duty periods when others were moving around the huts. Our clothing was adequate for conditions under which we lived. Boots were a source of difficulty. There were size eights to burn, but no small or large sizes. The Army boots were too cold to wear in snow. The fur-lined flying boots were ideal for life round the huts, but there was a shortage of sizes. We overcame the footwear problem by cutting up the jeep

trailer tyres and nailing three inches of rubber on the boot soles. This kept the military boots much drier.

Two pair of rubber knee boots which I had brought were the only waterproof ones in camp. Worn with two pairs of socks, they were comfortable enough round base. Ski clothing and ski boots were needed by the outside parties. The "woolly-bull" suits were useless when hard work had to be done, but were comfortable and warm in off-duty hours. There were a few shortages in other clothing, but, generally speaking, we were well provided, considering the speed with which the expedition had been organised. The provisions of harder-wearing working clothes, oilskins and underpants, with a wider range of sizes, were the main omissions.

By the middle of August the snow and ice was thick round the beaches. Icicles, hanging from the cliff-tops in Corinthian Bay, formed small grottoes above the ledges. Wharf Point was washed by slushy pancake ice. The water froze over boulders and stones where the receding tide left pools.

The chess match between Heard and Marion Islands was declared a drawn game after one hundred moves. We had no time to finish the contest, the South Africans being relieved on August 24. Before they left, we exchanged messages of good-will. Crawford, their officer in charge, was a jack of all trades, acting as meteorologist, surveyor, botanist, oceanographer and naturalist. He supplied "Doc" Gilchrist with information on the fauna and flora of the island. From Marion Island an iceberg with twelve satellites was sighted.

A small sausage balloon floated in the air one hundred feet above the "Nullabor." The "met" section were testing their kytoon. By means of a trailing cable, temperature and humidity readings were passed to the radio-sonde recorder in the shack. Unfortunately, the cable equipment was found to be unserviceable and the tests could not be extended.

The first Weddell seal was seen in August at Wharf Point. He was five feet long and had a rich soft fur, a brownish-grey colour. The young seal made the queerest noises imaginable.

While we stroked him on the ground, he growled like a dog, interrupting this noise at different times with loud hiccoughs. He could vary the note of the hiccough, the sound being very comic.

On days when Big Ben Mountain was clear of the clouds, small wisps of smoke were seen curling upwards near the second pimple, lending strength to the theory that there were hot springs on top of the old volcano.

At first the wisps above the mountain were thought to be small clouds in process of formation. However, when they were observed by different individuals on cloudless days, it was obvious there was another explanation. Muddy-coloured streams appeared at the base of the Baudissin Glacier, flowing on to the white flat. A party went to investigate and found the water lukewarm.

Blizzards continued to pile snow up in the drifts in the camp area. The rec. hut and workshop were buried like dug-outs. The high winds prevented the snow from lying more than two or three feet deep on the flat, the drift constantly being blown back and forth in trailing streamers. Sailing with skis across the "flat" became a popular sport with the more expert. "Doc" skied over from SW Bay to base camp in 8 minutes 45 seconds, "with the wind up his tail all the way."

More auroras were seen towards the end of August; long light beams sweeping the sky like searchlights. The effect of the colours would have been more spectacular if the visibility had been better. Most nights, the sky was eighty per cent. clouded over, few stars being visible. The clouds limited radiation, keeping the temperature more even.

Dovers, Jacka and "Doc" made the first crossing of the Baudissin. They travelled well above the sérac ice, and came down to the beach opposite Church Rock. They passed blue ice hummocks of all shapes. "They were so blue, you'd swear that if you chipped a piece off, it would still be blue," they said. The crevasses were covered with firm snow-bridges, making progress easier than their previous trips over the

ice. They estimated it would have taken them another day to make Mechanics Bay.

The celebration of Johnny Abbottsmith's birthday proved the best occasion of the winter. He presented his companions with five bottles of home-brew beer, the result of patient experiment and liaison between the cookhouse and engineering departments. I walked on "bear-paws" to the Cave Bay hills. Many birds were in flight, shags, black-backed gulls, "nellies," but the prettiest to watch were the cape pigeons. From the hill-top I looked down the cliff-bound bay with its central rock islands, where the waves tirelessly surged back and forth. I had not been standing there for long before the birds spotted me. The little pigeons soared up on the air currents from below, fluttering within an arm's length of my head. The chessboard patterns of the wings made them look like twirling moths. The experience was an unusual and pleasant one, the curious birds sweeping up to the cliff-top to look at the strange figure of a man. Dozens of them flew up on the wind currents, hovered for a moment above my head, then dived down out of sight.

One day an all-white bird was seen flying over SW Bay. From descriptions, it was presumed to be a snow petrel, though confirmation could not be obtained. Seldom was an albatross seen near the camp.

In my journal under the date of August 18 I noted: "A day I'll remember long after the blizzards are forgotten." When I breakfasted at eight o'clock, the temperature was 20 degrees. Mutual co-operation had enabled me to take a day off duty. And what a day! The sun was a rolling fiery ball above Rogers Head. The sky was that pale unique blue of the Antarctic. There was not a cloud to be seen. I skied over to the moraine hillocks near Erratic Point. Leaving my skis at the base of the moraine, I climbed, disturbing the gentoos near the site of the old rookery. A magnificent view awaited me on the top of the hillocks. As far as I could see the island was snow or glacier, falling straight into the still, blue ocean.

The contrast between white and blue was in the richest technicolour. White pinnacles at sea were the McDonald Islands. The slopes of the mountains behind Mt. Olsen ran gently down to the sea. In the east the Schmidt Glacier curved in a semi-circle to Cape Gazert, a mass of blue sérac ice above the water. Both peaks of Big Ben were visible. I could see small traces of smoke rising from the higher one. I ate my lunch near Erratic Point, basking in the unfamiliar warmth of the sun. In the afternoon I wandered around taking photographs until the sun disappeared behind Mt. Olsen's table-top. I can remember nothing to equal the peaceful calm and the beauty of the island as it was that day. The clear air burst your lungs, sweeping away the confinement and mental strain of the monotonous days at base.

A cold spell marked the end of August. Sea temperature fell to 29 degrees, the lowest reading. Slush ice formed round Atlas Cove and Corinthian Bay. Three cyclones swept the island in four days. Ground temperature fell to 8.4 degrees. Hurricane-force gusts swirled the drift round the huts. The baro. rose and fell like a switchback. According to the "met" records, between 1848 and 1947, five hundred and fifty-two cyclones had been registered in the Southern Indian Ocean. Our meteorologist considered this was a conservative figure, probably based on reports from whaling and sealing ships.

The experience of the Heard Island Weather Bureau was that we could expect at least an average of one cyclone a week throughout the year. On August 30 the baro. sank to 27.9 inches, ending an extraordinary period. Amazingly little damage was sustained during these blows. Our huts were snug behind the hummocks and the deep snow banks. The survey hut, more exposed than the others, suffered a damaged roof.

CHAPTER TWENTY-FOUR

IN THE FIELD AGAIN

FOR WEEKS the field men had been impatient to get away from base. Unfavourable weather had limited their use of the small dinghy. There was only one day a fortnight when the boat could be used with perfect safety. Before a trip was contemplated, the boat party consulted the weather men. If the forecast was unfavourable, there was no boating.

On September 6 we had the first real rainfall in three months. It began drizzling after lunch. A north-westerly blew up, the warm front passed through, hitting the temperature to 38 degrees, the warmest for many a day. The rain continued until the following noon, thirty-eight points being shown in the gauge.

The rain was welcomed as a sign of thaw, and the coming of spring, but, alas, the hopes were vain. While the rain was falling, the main drift in the middle of the camp shrank by two feet. Water was running off everywhere. Green hummock tops sprouted through the white ground. In the bleak and foreboding landscape even the smallest patch of green was welcome. Most of us at Atlas Cove were city dwellers, but how we longed for the sight of a real tree with green leaves, the smell of a simple flower, the feel of grass underfoot! The eternal appearance of the white snow and black rocks, the absence of sun, the mists and low clouds made one cry out for colour in the dull landscape.

The rain washed the snow and ice on the beaches, baring the grey sand. Patches of black volcanic earth appeared on the Nullabor for the first time since April. The two days' thaw was accompanied by strong winds, which peaked 80 m.p.h. Hidden for months under the white carpet, tops of

garbage piles appeared to scar the surface. Here was revealed an old boot, discarded months before; scraps of paper, empty cigarette packets, tins. Two skuas were observed flying over the camp, the first to return after their winter absence. But there was still plenty of winter to come.

Abbottsmith began building a Nansen-type sledge for the summer operations. It was to have an overall length of nine feet. Lambeth, in the middle of his glaciology and the records of the geological survey, could not find time to accompany Dovers and Compton. Abbottsmith went in the field, while base personnel looked after the Diesels.

Our early optimism over the thaw was soon dampened when the temperature fell back below the twenties. The change influenced the field men. Instead of waiting round camp indefinitely for fine boating weather, they decided to survey the Schmidt Glacier. Construction of the Hansen sledge involved steaming and bending hardwood strips for the runners. A one-inch steel-faced keel was fixed to each runner to provide smoother travelling over hard frozen ice. The sledge was held together by mortise and tenon joints, laced with tarred cord. The lacings were waterproof and provided flexibility for moving over bumpy ground.

A blizzard held up the departure until September 10. It was a sunny morning, the temperature at 25 degrees. When they left base Campbell-Drury went to take pictures, but before long found himself in the harness, hauling the sledge. It was hard work pulling the 400 lb. weight up the moraine slopes to the Schmidt Glacier. Drift sand from SW Bay was mixed with the snow, making the going tougher. The four men in the harness took frequent rests up the moraine. When they approached the névé in the valley above the crevasses, the hauling was worse. The sledge was constantly being upset. Finally the men decided to off-load half the equipment and make the ascent in two journeys. Skins on their skis prevented back-sliding as the men strained on the harness.

Reaching the plateau at the top of the valley, they unloaded the sledge and returned for the rest of the gear. Abbottsmith careered down the valley on the empty sledge, the three others in hot pursuit on skis. Campbell-Drury, unable to pull up at the end of his long run, piled up in a deep powdery drift, much to the amusement of his companions. They had not been in the best of spirits during the heavy hauling, but, with half the haul accomplished, there was time for a cheery word. They lunched half-way up the valley, and after half an hour's rest moved on.

Compton's diary tells how they spent the time on the glacier:

September 11.—“Up at 7.30 a.m. Had lot of porridge for breakfast, as Bob had measured out three handfuls, instead of three spoonfuls, per man. Ski-ed down to Cape Gazert then up to Green Hill, 350 feet. Took rounds of all major points. Went to coast for lunch and collected half a dozen gastropods. Saw sea anemones in the rock pools. Noticed evidence of ten feet local uplift. Limburgite or similar flows comprise the cliffs. Green Hill is a moraine ridge across the base of the cape. In moraine there were many samples of basalt, containing clivines. Lost my pipe, the good old curly one. Work seems hard after sloth of base life. For tea had beef stew and vegs. Half-dozen prunes. Almost finished Gazert.”

September 12.—“Ski-ed down to Gazert to spend mucky morning exploring the cape. In the afternoon worked uphill and started subtense survey, but were driven down and home by freezing NW squall. Good tea again, very full. Watch again packed up, took time sig. over radio. Fine snow and high wind, but new tent O.K.”

September 13.—“No survey today. After cloudy morning, weather cleared. Left camp, setting out southward. Picked camp site on moraine at thousand feet level. Climbed 500 feet up ice ridge one mile further on. Found ourselves with poor visibility and up against a constantly receding series of

false crests. Gave it away and returned. Still nice and dry in tent, but bed starting to show the damp edge of condensation. Temp. 26 Fahrenheit."

September 14.—"Day started very misty, but soon cleared, giving us our long-awaited view of the mountain. Did necessary observations to complete computation of the various crests. As checks, did Lat. and Azimuth Obs. Very warm in sun. Ski-ed down to Gazert. We killed two gentoos for meat. We thought we'd have penguin for tea, but the stove played up. Had sardines, raisins and prunes instead. Stove came good and we had two brews of coffee. Observed definite and continuous emission of vapour from summit crater of Big Ben. It was unmistakeable and could not be confused with any form of cloud. Sun spots observed at 4 p.m."

September 15.—"Unpromising, windy, snowing. Did not leave camp, though intended moving down to the far moraines."

September 16.—"Today started dubiously. A toss-up whether we return to base or push on. The stone fell within ten feet, so we decided to go on. Started with full load on sledge, but after pulling a mile were forced to ferry up half-loads. We were nearly pulling our guts out on the steep grade. It was worse after we had had a spell. Then we must pull, jerk and heave to get the sledge started again, for the runners froze to the surface. Thus we were almost exhausted by the time we got going. The half-loads enabled us to walk up the hill. Put up tent on south side of Schmidt. Wind, strong SSW very cold. Feet started to bite like old times along Cape Laurens. Everything cosy now, with beds spread out and tea inside our several tummies."

September 7.—"In tent all day. Windy and full of snow; visibility very bad, as though we are living in a cloud. Tent is encased on three sides by ice, and on the other by a snow-drift."

September 18.—"Tried high, low and medium to cross the great crevassed ridge, but we were blocked off by an outwork

of minor bridged crevasses, impassable for sledges or men with loads. Climbed to 2000 feet. Wind very calm during most of the day. Climbed ridge on skis and skins. In cloud for first 500 feet. Felt rather than found our way over successive false crests, to the gully of crevasses. In perfect calm, we rested and smoked for fifteen minutes, while the sun broke through the clouds. Ahead of us was a hogs-back of immense crevasses, while the peaks of Big Ben towered and glistened. We approached within a quarter of a mile of the minor crevasses, walking on skis, roped together.

"Every once-in-a-while Johnny's smaller skis would open a crevasse with a 'kerlump' as the snow gave way. The middle course being impossible, we tried higher up, but the same obstacles continued as far as we could see. We returned to camp for lunch, and then climbed over baby morainic mounds towards the coast. Eventually reached a position where we could overlook the mouth of the glacier. The landscape was almost obscured by cloud. An immense ice-fall was dimly perceptible 300 feet above us. Returned to camp disappointed.

"Clear and calm moonlight night. Big Ben, NE Cornice and Mt. Olsen all clearly visible. Temp. 25 F. Altitude, 9800 feet. Baro., 29.08."

September 19.—"Blowing 70 m.p.h. all morning. Wind N to NE, fish-tailing gusts threatened to snap tent poles. Continuous roar of wind all day. Confined to tent."

The following day Abbottsmith, Dovers and Compton returned to base. They had surveyed the glacier and brought back valuable information for the men anxious to climb the top of Big Ben. After calculating their different shots, the surveyors gave the height of the mountain as 9005 feet. This figure was less than the estimate given by the Walrus air crew, but it appeared they must have been flying above the top of the mountain when their photographs were taken.

CHAPTER TWENTY-FIVE

THE PUPS APPEAR

SEPTEMBER was in many ways the most enjoyable month of the year. Winter was nearly over, and we enjoyed idyllic days—days when the sun shone all day, when the air was crystalline, skies blue and the mountain peaks white and wonderful. When you thought back to the blizzards and storms, it seemed incredible that such peace and quiet grandeur could be found on the same island.

September 14 was a day in point. We had 6.2 hours of sunshine. The “met” section made the best of the opportunity. Aub Gotley, their chief, had his eye at the theodolite for 54 minutes, following a radio-sonde balloon to a height of 43,000 feet. It was cold work standing at the instrument; his eye was running all the time. It was the highest flight the “met” had followed on the theodolite. They were hoping to better the American balloon record for the Antarctic, which, we understood, was 52,000 feet. Suitable opportunities to follow balloons to such heights were strictly limited. The inevitable overcast and low mountain-clinging clouds were the despair of the weather students.

The average sunshine was about an hour each day throughout the winter. There were many weeks when we never saw the sun. At times it was a weak yellow disc in the grey sky, devoid of warmth or light. The average daily sunshine in April was 1.7 hours. It fell to one hour in May, eight-tenths of an hour in June, half an hour in July, rising to 1.5 hours in August and to 2.1 hours in September.

On September 16 the temperature was sixteen degrees below freezing, but two days later we had another magnificent day. I left camp with my camera early in the morning

for a trip round the east coast of Cape Laurens to the Jacka Glacier. It was one of my most enjoyable days on the island. Walking at the base of the mountains, I sank above the knees in the deep snow, which covered the boulders on the beach. It was easier going near the water, although innumerable rocks had to be negotiated. I visited a small grotto along the coast, where blue ice stalactites, twelve feet long, were suspended from the roof.

I quenched my thirst with a piece of ice. Though the temperature never rose above 25 degrees Fahrenheit, it was warm walking in the sun. I plodded on for another half-mile and then sat down on the rocks to eat the sardines I had brought for lunch. I stripped off my windproof jacket. The heat radiated by the snow affected me like a drug, willing me to sleep. I must have dozed for half an hour or so. I woke feeling refreshed and lazy. Across the water I could look past Rogers Head to Saddle Point. The camp huts were barely discernible in the glaring white of the snow-covered landscape. The radio masts were thin, small, silver needles, shining in the sun.

Cliffs rose hundreds of feet above my head. A little further on there was a great white sheet of the Jacka Glacier flowing down to the beach. Long shrouds of blue ice drooped over the cliffs, bright trails against the dark backdrop. Some falls were thawing, pretty cascades running down the sides. Sea leopards lay basking on the off-shore rocks, making peculiar rattling noises, audible a long way off. Their mating call was different. Like the honk of a ship's hooter in a fog. A drawn-out, steady mournful note, "Oooooom! Ommmmm!" answered by other leopards. Sea birds were flying everywhere along the coast. High up I could see the W-shaped wings of the sooty albatrosses, darting, frolicking and hovering along the cliff top. They never came down low like the other birds. A "nellie" landed on the blue water near the rocks. The next second a sea leopard popped his head above the surface and

lunged towards the bird. The "nellie" managed to flap his wings in time to escape losing his tail by inches.

Bull elephant seals were returning to the beaches. Their numbers increased by two or three each day. They lay out on the snow, stretched out, sleeping, as if exhausted after their long absence at sea. They dug their trunks into the snow and sand, snuggling into the ground for warmth and protection from the wind. In the middle of September the first cows hauled up in Atlas Cove.

As the cows came ashore the master bulls rounded them up into harems. Round Atlas Cove beach there were four harems. The bulls fought and struggled on the beaches for control of the cows. Some received vicious injuries. One of them, whom we called "Dangle Nose," lost half his trunk in a fight.

The first seal pup was born on September 20. I was standing on the beach at Atlas Cove with "Lem" Macey. A crowd of carnivorous birds attracted our attention to a spit higher up, where a small harem was assembled. The pup could not have been more than an hour old when we saw him. He lay beside his mother, like a large cocker spaniel. Wondering, saucer-like eyes wide open, short doggy whiskers. His body was furry, his tail long and awkward. He was three feet long, barked like a dog, and knew where to go for refreshment. The cow was vicious, trying to attack us when we stroked the pup. Nearby, Macey and I measured a bull. He was eighteen and a half feet; the longest we had seen. In the following days it was difficult to keep track of the number of pups. More appeared each time we visited the harems. The cows formed a protective circle round the pups, like an organised nursery—no need for baby sitters here!

The master bulls kept a strict watch over their cows, fighting off the intruders. It was the same on all the beaches. The bachelor bulls lay outside the harems, waiting for a chance to

slip in and seize a cow, but the master bulls were never caught napping. Sometimes a loud trumpeting belch from the centre of the packed harem was enough to send the intruders scuttling back into the water. The bachelors, or the "no-hopers," as we called them, patrolled the beach off-shore, keeping their eyes on the cows, waiting until the master bull's attention was engaged elsewhere. As soon as this happened, two or three bachelors would lollop ashore and barge into the harems. "Doc" made the rounds of the harems two or three times a week, keeping the tally. One harem in SW Bay contained 20 cows. At various times there seemed to be three or four bulls in charge. We began to think that control of the harems changed hands frequently.

The noise from the harems was like the continuous baying of hounds. It was dangerous work counting the numbers, since not only the vicious cows, but the menace of the master bulls had to be borne in mind. It was fatal to turn one's back. The lumbering master bulls were not slow over the ground in defence of their cows. In the middle of making a count, "Doc" was bitten on the left hand by a cow. Fortunately, his glove took the force of the bite. The smell from the squabbling cows and struggling pups left nothing to the imagination.

One pup saw the first light of day near the south-west radio mast. The cow was very docile. We thought she had left the harem on account of sickness. Helped by Keith York, "Doc" carried the pup into Admiralty hut on a stretcher. The pup barked loudly when we tried to place him on the scales. Keith was able to lift him. The scales were only a foot square, so we put the pup in a box. He tipped the scales at 76½ lb., a hefty baby for any animal! It was dark when we returned him on the stretcher to his waiting mother. She heard him barking and came to meet us. When we rolled the pup off on the ground, he did not know his mother, but buried his head in Keith's lap. He tried to follow us back to

camp, but next day the cow and pup had moved to the flat, on their way back to the harem.

Before the end of October "Doc" counted three and a half thousand seals round the four main beaches. The first pups had grown to fat furry creatures, five feet long, during the four weeks they had lain in the harems suckling.

The master bulls continued to trumpet and belch. Many conflicts took place, the bulls rising on their tails and stomachs, sparring up to each other. They threw all their weight into the attack, sinking their teeth into their opponents' necks, gripping like bulldogs. Born in the middle of squabbling cows and the charging master bull, the seal pups had to fight for existence from the first day of their lives. Carnivorous birds were ever on the watch for the pup that strayed from the harem. Pups wandered into mudholes, became buried by snow or were drowned in the temporary thaws of coming summer. Some pups froze to death in the cold spells. "Doc" estimated their mortality at a minimum of ten per cent. While the pups lay beside their mothers, they were always feeding. Once they strayed or became separated in the harem squabbles, the cows made plaintive calls to their young. You could see a pup struggling to move across the rutted ground to his mother. Somehow, amid all the other yelps and barks, a pup would know the distinctive call of his mother. It was a pathetic, wailing cry. You could hear it night and day.

Charging bulls barged through the harems, rolling the pups over and over. Only once did we see a pup hurt in this fashion. In his patrols round the harems, "Doc" saved many pups. He took a shovel along and dug them out of the holes into which they had wandered. Once a pup had left his mother for any length of time, the cow seemed to forget the pup. Several times we mercifully shot pups which had been blinded by the skuas and "nellies." Once away from the harems, the pups were helpless. After six weeks the harems

began to break up, the fat pups moving away. The cows disappeared. Young bulls sparred among themselves, apeing the older hands.

We had fun with the pups. They were fat and friendly for a few weeks, until they developed small front teeth. You could rub their fur while they slept. When they awoke, they looked at you with soulful eyes, like faithful dogs. When they realised who you were, they reared up on their flippers in the fashion of their kind. They had a knack of looking at you backwards and upside down by turning their heads back, moving their bodies into U-shapes. Once away from the harems on their own, the pups waded into the creeks and glacier streams. When they were hungry, they started going into the water. They knew how to swim by instinct. We saw little evidence of the cows or bulls teaching them or guarding them in the water. Sometimes we saw the bulls chasing them ashore. They lay round the rocks and hummocks between Wharf Point and the camp. One wandered into the lavatory shed, spending the night there. Pups were all round the camp, outside the huts, sleeping, barking and trying to fight like the older bulls.

We killed a pup for meat. The kidney was popular. Seal tasted like veal to appetites blunted by months and months of canned food. Inside the stomach of the pup there was nothing but sand.

Over the rec. hut radio we heard: "In Melbourne it was announced by Group Captain Campbell that, owing to the lack of a suitable ship, no trip would be made to the Antarctic continent in the summer of 1948-9. The *Wyatt Earp* has been found to be too slow and too small. The year's programme will be confined to the relief of the annual parties at Heard and Macquarie Islands."

It was the first news we had heard of our relief. Already calendars were being ticked off and days counted, though much remained to be done in the summer months. Over the

weekly broadcast to the expedition we heard the thrilling news that a French ship would visit Heard Island at the end of November. Telegrams were sent home asking for mail, papers and photographs. The French ship, the *Commandant Charcot*, named after the explorer who visited Graham Land in 1904-5, was due at Durban, South Africa, early in November. Mail, vital engine parts and meteorological spares, we were informed, were being shipped from Australia to catch the boat at Durban. French, "as she is spoken," became the mealtime conversation. School day phrases returned to dimmed memories. We intended to greet our French visitors in their own language. We even began to make lists of what supplies we could give them in return for bringing our mail.

We would be getting our first letters from home after a year. We could send telegrams from the island, but at the best this was an unsatisfactory method of communication. There is nothing to replace the sight of familiar handwriting. Much had happened in our absence. Two of our party had become fathers. Photos. would be on the way. The morale of Atlas Cove camp rose to unprecedented heights.

A few days later the blow fell. Aub Gotley received a message from Expedition Headquarters which stated that, owing to the internal situation in France, the departure of the *Commandant Charcot* had been delayed. The ship would not now call at Heard Island. Our dreams were dissipated. We shrugged our shoulders. It was a disappointment in another way. Fresh faces, fresh conversation, would have been a relief. Our own were tolerable, but, with the passage of time, were becoming increasingly familiar.

The fourteen of us saw the same faces each day. Sometimes you knew what a man would say before his lips formed the words. It might be the same old story, being told for the umpteenth time; it might be the remark which you had thought funny the first time, but now, to hear it again, made you grind your teeth.

The closeness of camp life had its embarrassing moments

if you chose to indulge in some self-analysis. Studying oneself honestly and fearlessly, you became conscious of human faults which had lain hidden in civilisation. Perhaps your jokes were really weak; perhaps you were sarcastic; your manners might be bad, or perhaps you were always late for meals. If honest, you admitted your faults, and, in so doing, could not help but notice the annoying habits of others. And you knew they probably thought the same thing of you!

The one great steady factor in our relationship over the long months which limited disputes to verbal badinage was the fact that each one of us was subjected to his own quota of leg-pulling. We were all laughed at some time or other, and the effect was to make each one appear ridiculous to his fellows. Disputes were reduced to an exchange of uncomplimentary epithets. Though the two disputants might get hot under their collars, they just provided fun for the rest of the party.

On September 29 the news of the death of Pilot Mal Smith came over the air. "Smithy" "went in" when his Catalina flying-boat crashed at Lord Howe Island. We all remembered him, not only for the great flight over Big Ben, but for his friendly and enjoyable personality. He was twenty-four, and left a widow and two children. Gotley endeavoured to convey our feelings in a message of sympathy.

October brought the usual cyclones, with gusts between 80 and 90 m.p.h. The blizzards were as bad as any in the preceding month. It was the same old story. For instance, on October 3 the temperature at five in the morning was 19 degrees. The wind swung from the SW to ENE. By eleven o'clock the temperature rose to 30 degrees, as the warm air moved in from the lower latitudes. Surface snow was whirled along in white streaming trails, thick and blinding. During the cyclones were experienced every wind except a south-westerly. The huge mass of Big Ben saved us from that.

During this blizzard we had to dig through six feet of

frozen snow and ice to find the food dump outside the cook-house. It was a two days' job, which required the assistance of all hands. Shovels were blunted by the hard surface. Picks and heavy hammers made small bites in the solid winter crust, but they were the only weapons for the job. When we came to the tarpaulin covering the wooden food boxes, it was firmly frozen down. We tried thawing the ice with hot water. The water cooled and froze, adding to the difficulty. Finally, when the tarpaulins were rolled back, the boxes were re-stacked into a six-foot snow-house.

On October 9 the anemometer froze up. The heaviest snowfall accompanied the cyclone, estimated to be at hurricane force. When we sat down for the evening meal, the snow was swirling round the huts in a heavy dense fog. An hour later the rec. hut door was blocked up on the outside and the porch was three-quarters filled with snow. When we climbed out of the hut to go to bed, we had to stand on chairs and pull each other up from outside. The engine-house was completely snowed up. Fortunately, Abbottsmith had tied a string from the Diesel engine to the bolt-hole in the door. The late-duty radio man could turn off the camp power by tugging the string before he went to bed. The alternative—and it happened a few times—was twenty minutes' solid shovelling before you could open the engine-house door. During the night the wind swung round from NW to SW. By breakfast it was again calm. Shovels were soon at work digging out the huts, but the cyclone was not finished.

During the day the barograph fell to 27.79* inches, the record-breaking low for these latitudes. The pressure drop was one and a half inches in twenty-one hours. Gotley feared another hundred miles an hour wind. Snowdrifts round the camp, which had shrunk a few inches in the September rain,

* Lower barometric pressure readings have been recorded during the passage of hurricanes in the tropics of Northern Australia; e.g., in 1881 at Cossack, Western Australia, 27 inches was noted. However, such hurricanes generally mean great damage to property and often loss of life. At Heard Island low barometric readings were common.

rose to new heights. The largest drift, in the centre of the camp, was ten feet above the rock ground. From the porch of the "radio-met" shack only the roof tops of the rec. hut and cookhouse were visible; the rest of the two huts was hidden by the drifts. To enter the rec. hut you walked down a sloping tunnel, like a subterranean manhole. The engine-house was nearly as bad. The big space excavated for the food piles was refilled by the drift.

The blizzard blew all day. It was folly to venture outside without an urgent reason. The sleeping huts were blocked up. Two men inside were content to go straight to bed. The men marooned in the rec. hut were better placed, food and drink at their fingertips. The south-westerly blew the tops off the fresh drifts. The baro. rose in a near-vertical trace. During the night the blizzard exhausted itself. We awoke the following morning to a bright sun and a still all-white landscape.

The field men were still in base. Supply and equipment problems for the coming operations had been a topic of conversation for days. Dovers and Compton, the survey team, had returned from Cape Gazert with a profound respect for the crevasses at the eastern end of the Schmidt Glacier. Their week on the glacier, sledging, mountaineering and camping, was valuable training and experience after the winter months in base. The luxury of the dry bunk in the sleeping huts, the warmth of the rec. hut and the routine life at Atlas Cove were beginning to pall. Bob Dovers was getting restless.

As the days grew longer, the men became anxious to finish the survey. It was important they should be out before the summer thaw softened the snow-bridges over the crevasses. Every morning Bob was up early, striding over the flat to Corinthian Bay, field glasses slung round his neck. From the beach he focussed the lens on the tip of Saddle Point, studying the white horses at sea, the bay swell and the ice off the distant beach.

Lambeth, Compton and Abbottsmith had made the first

dinghy trip from Atlas Cove to Saddle Point in the middle of August. The sea was as calm as the proverbial mill-pond when the yellow *Anare* turned Wharf Point. Pancake ice and slushy snow floated on the surface, slopping the bows. To round Rogers Head they steered half a mile to sea. Dangerous rocks and hidden reefs surrounded the massive monolith.

Attempts were made to repeat the dinghy trip from Atlas Cove, but unfavourable weather defeated the boatmen. Experience had proved that it was foolhardy to risk the dinghy in anything but a perfectly calm sea. Often the sea was calm for a few hours, but before the boatmen had a chance to complete their preparations and launch the craft, the wind would be rolling in the wavelets. The attempt would be postponed till another day.

For months the field men had considered the prospects of a boat trip to Spit Bay. In the light of the experience they had gained, the chances of such a trip being successful were more doubtful than ever. Exceptional weather conditions would be necessary if a landing was to be made the other end. There was no known intermediate beach, where a temporary haven might be made in an emergency. Three or four men would be needed in the boat. Stores, tents, petrol, supplies and instruments had to be carried. We all knew the dinghy was not built for the venture. To overload the boat might be fatal. There was no guarantee of suitable weather. Some radio communication was essential. This, of course, meant extra weight. While waiting around for fine weather, the men thought they might as well try travelling over the glaciers. They considered the problem from every angle. The dinghy venture seemed unnecessarily risky, with little chance of success. Finally they decided to set up a staging camp at Saddle Point, from where they would try to penetrate overland to Spit Bay.

One hundred and fifty pounds of food, including bacon, oatmeal, dried milk, dehydrated soups and vegetables, sugar, salt, tea, coffee, malted milk, Ovaltine, flour, curry powder,

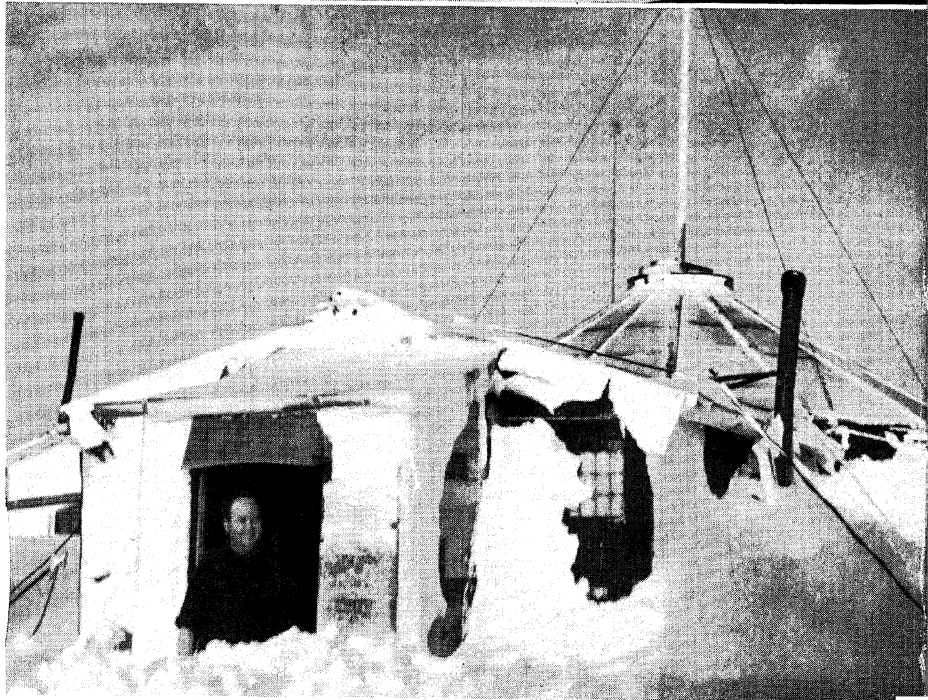
etc., would be taken. An Army tent, the type we had used during our first days on the island, would be erected. In the field the men would use the second pyramid tent, manufactured during the winter. Lamps, kerosene, stretchers and spare clothes would be left at the Saddle Point base.

Nylon climbing ropes, crampons, ice-axes, the Nansen-type sledge, the actual equipment to be used overland, added to the total gear to be transported by the dinghy across Corinthian Bay. The survey team hoped to work entirely from Saddle Point base without the wearying necessity of returning to Atlas Cove to dry out their gear.

To avoid the dangerous and longer passage round Rogers Head, the dinghy was operated from Corinthian Bay. The first load was taken over on September 22, the sunniest day till then, 9.6 hours' sunshine being recorded. Though the temperature was below freezing, ground radiation made the air feel warmer. The next day, with the barograph at 30.31 inches, its highest reading during the year, more supplies were transported.

There was always a slight swell off the point. Rocks extended half a mile out, many being submerged by the tide. Day after day the men stood by, waiting to ship the rest of the gear across the bay, but the weather was unkind.

Tiring of the delay, they planned to haul the remainder of the equipment by sledge over the Baudissin Glacier to Saddle Point. On October 9 Dovers and Compton, assisted by Jacka and "Doc" Gilchrist, set out with the sledge. Owing to the late start, they had only made the first rise of the glacier by eleven o'clock. As the day was exceptional, and the sea calm, Dovers returned to base for the latest weather information. The portents looked fine, so Dovers stood atop the wrecked plane, signalling the glacier party to make for the dinghy at Corinthian Bay. In the meantime the perversity of the weather was again illustrated. The sky clouded. A NE wind freshened. Gotley could give the men no encourage-



Top: An Albatross flies high above Atlas Cove.

Bottom: Norm Jones and a typical winter day outside the cook-house.



Top: Atlas Cove Camp in depth of winter.

Bottom: The Camp at sunrise—Big Ben in the background.

ment. However, after all their efforts, they determined to make a trip in the dinghy, come what may.

After lunch Compton and Dovers loaded the sledge and equipment into the dinghy. Macey and Lambeth went along as crew. From the camp we watched the dinghy pass Church Rock and out of sight. An hour after the boat's departure heavy black clouds darkened the sky. The north-easterly stiffened. Great clots of snow began to fall. At sea a heavy swell was stirring. In the "radio-met" shack Gotley anxiously watched the barograph. I could see he was worrying about the boat party. When he suggested going to Corinthian Bay with the glasses to look for the dinghy, I offered to accompany him.

It was snowing heavily. As we tramped over the Nullabor, clouds were lower. A black curtain over the bay. When we reached the beach, visibility was down to a hundred yards, but to our relief the yellow shape of the dinghy was emerging from the black-out.

Surf was thrashing the black sand when Lambeth cut the motor. The men jumped out, wading ashore, pulling up the boat before the waves had a chance to overturn her. The men related how, when three-quarters of the way to Saddle Point, they observed black clouds looming ominously in the distance. Wisely, they turned for home, but not before they had seen floating ice off Saddle Point beach. At sea white horses were breaking. Prowling sea leopards followed the dinghy, worrying the men. They shot one with the service revolver; the others sheered off into the waves. Further attempts were made to reach Saddle Point in the following days, but each time the weather won. After many abortive attempts, the survey team, Compton and Dovers, were landed on October 15. Lambeth and Abbottsmith manned the dinghy. On previous occasions waves breaking over the rocks at Saddle Point had troubled them; this time it was heaving ice. Lambeth cut the engine some distance off-shore.

The dinghy rode the swell, while the crew fended off the floes with the oars. Some floes were twice as big as the dinghy, but the men drew near enough to the shore to enable the surveyors to jump out. The gear was thrown ashore. It was too risky to beach the dinghy. Tent and sledge were passed to the men. Returning to the clear water was a stern task. The two men in the boat had to contend with the swell and the jumping ice. They rowed for two hundred yards before they were clear. At night Compton sounded cheerful when he came in on the sked.

"All O.K.," reported "Swampy." "We're eating shags' eggs here. There are dozens of nests."

"Doc," Lambeth and Campbell-Drury took time off to visit Cape Gazert, crossing the rolling blue ice folds of the Schmidt Glacier. The ice was broken near the cape, where the glacier fell into the sea. Tall thin pyramids, the séracs, the pines of the ice forest, were a dazzling, jagged array one hundred feet above the waves. The party ate lunch, reclining on the steep slopes of the cape. "Doc" produced his favourite prune blocks and concentrated chocolate, snacks which accompanied him on every excursion. Bird life abounded on the peninsula. "Doc" found "nellies'" nests, eating one of their eggs raw. "It's delicious," he told his companions, but his recommendations failed to influence them to follow his example. Albatrosses played in the sky; cape pigeons fluttered like butterflies. Cormorants beat the air like wild geese. Off-shore, Pulpit Rock was a small volcanic island, its green moss-covered top lit by the sunshine. Deep blue waters lapped its precipitous cliffs, black at the base, but an unusual rich red higher up, sheltered and calm.

Crystal clear rock pools surrounded the cape. "Doc" had a busy afternoon searching for shellfish. Sea slugs, leeches and worms lived in the pools. On the beach "Doc" found a variety of life, sea cucumbers and sea squirts. Unfortunately, he could not collect many specimens as he had no suitable pre-

servative. Jim Lambeth made a geological examination of the area, collecting specimen rocks, while Alan Campbell-Drury photographed unusual formations. Their departure had its humorous side. "Doc" could not find his spectacles or wrist watch. He remembered placing them on a rock while plunging his arm into the pools for specimens. The three men searched all round. They found the watch some distance away and the spectacles in one of the pools. The cheeky "paddies" had taken them.

The field men came in on sked every night from Saddle Point. We learnt that they had erected a permanent camp there. Two days later they penetrated over the glacier to a point four and a half miles SE of their camp. We could follow their progress by positions on the photos. taken by the Walrus photographer.

"We found a side-marker among the bulls at Mechanics Bay," "Swampy" reported one night. Of necessity, skeds were limited to three minutes to conserve batteries. For a time we missed the import of "Swampy's" remark. Then someone recalled the day they had painted the bulls in the Atlas Cove harems. A red dab on the trunk for the master bulls; a red dab on the side for the hangers on or "no-hoppers." Now a side-marked bull had turned up in Mechanics Bay!

"Doc" weighed the "nellies'" eggs from Cape Gazert. They averaged 9 oz. He broke the shell of one and made an egg-nog. It looked a queer colour, but "Doc" swore it was good. To prove his contentment he had another one a few days later. He investigated the shellfish specimens, eating the roes out of one gasteropod. He was equal in his praise, though again we were content to accept his word.

On October 19 Lambeth returned with the first gentoo egg. It weighed 5 oz. As omelettes we found the eggs were fresh and edible. In any other form they were awful! Norm Jones tried frying one for twenty minutes, but it would not coagulate.

Scrambled eggs were better, but whichever way the penguin eggs were served, we obtained more palatable results with ordinary egg-powder.

Winter went with the passing of October. On the 25th of the month the temperature rose during the night to 42 degrees. Rain fell continuously for thirty hours. By the end of the month we had had 301 points of rain. After months of blizzards and overcast skies, the rain was as refreshing as mountain air. It ran down the roofs, washed along the gutters and filled the water tanks. The Nullabor, upon which we had gazed day after day as a blinding white carpet, changed colour. Gravel patches appeared at the water's edge, where seal pups barked and suckled. Slowly, but inexorably, the thaw rolled back the snow carpet, exposing grey stones and sand. Wide glacial streams flowed under the hard-frozen crust, pouring into the bays. Skuas and "paddies" washed and splashed in the fresh water. The number of birds increased daily.

Walking along the beaches became a popular pastime. There was always something different to observe as summer approached. Life teemed along the foreshores, in small rock ponds and creeks, and in the ocean. Long, leathery fronds of kelp, fifty feet long or more, were washed up on the beach. A fringe of the brown thick coils festooned the coast. At SW Bay the "paddies" waited on the beach for krill. When a high wave washed the sand, the "paddies" forgot their internecine pecking and dived for the water. The krill was left like a pink line on the shore. Attacking the receding wave, the "paddies" pecked the pink shrimps like fowls at feeding time. The sea was the provider of all life for the island. When a jellyfish became stranded on the beach, swarms of birds appeared from every direction. Some days russet-coloured kelp, thick and soft, like moss, was washed ashore. For several feet the sand would be covered with the vegetation. On these occasions the whole bird population gathered to pick the kelp. They ate small white particles in the stringy

vegetation. They swarmed on the beach until their stomachs were full. As usual, the "nellies" performed the worst.

In the rock pools at Wharf Point and Windy City you could see life fighting for existence in the water. Curious long, wriggly shapes, moving tiny, crawling objects. The sea sustained the seals, the hundreds of thousands of penguins and the many different birds.

Snow drifts round the base thawed so quickly that water poured off in streams. It ran beneath the sleeping huts and rose to floor level. All hands were mobilised to dig trenches. We dug through feet of ice and snow to make drains so the water could escape to the flat. The store huts were flooded. A green stream flowed from one hut where drift indicators had been left on the floor. The white carpet of the Nullabor moved slowly backward until it resembled a lake from Atlas Cove to the Baudissin Glacier.

The gentoo rookery, half a mile behind base camp, was in full swing again. It was from this rookery we had seen the first penguins on our arrival at the island. The early nest-builders had wandered into the grass clumps in August. For weeks they seemed to stand around, doing nothing. As their numbers increased, so the courtship and domestic life began. It was like watching a puppet show when you sat in the tussock and watched their antics. Nest-building was a serious business in Penguin Town. A bird would lead his mate to a particular spot in the tussock. They cawed at each other, stretching their beaks in the air. Then, face to face, the birds bowed to the ground on either side with old-world courtliness. The birds scratched around with their beaks for pieces of grass and stones, which they carried to the feet of their chosen ones. Tirelessly they waddled back and forth, bringing grass for the nests. The lazier ones wandered over to the unguarded nests, helping themselves to the grass collected by the more energetic birds. This was going on all the time. "Lem" Macey was there one afternoon. He said

there was so much thieving going on among the penguins that he did not doubt why it was called a rookery. The gentoos were timid, abandoning their nests when you approached, leaving their eggs exposed to the world. One afternoon while I was there a hovering skua dived like a streak of lightning on to a nest, picked up the egg in his beak and flew away. The nearby penguins let forth a great wail against this invasion from the air, but they were powerless.

A few tricks were played on the penguins. One egg was taken from a nest and placed in another nest, where there was no egg. We waited to see what would happen. When the penguins returned and found an egg had arrived in their absence, they took it all in their stride. A bird squatted down on the egg, as though all the time it had been his property. The penguins who found their eggs missing were completely mystified. They searched round the clumps, as if to assure themselves they had returned to the right nest. Finally, when the egg was switched back to its right nest, harmony was partly restored. Even while they saw the egg being picked up, the birds did not seem to realise what was happening. The gentoos laid two eggs in each nest. If we were collecting eggs, we always left one in a nest.

The amusing rockhoppers returned to their rookery at Rogers Head and Mt. Aubert at the end of October. Within a fortnight there were thousands hopping around the rocks and caves. They were the tamest of the penguins. At Rogers Head rookery you could pick up the rockhoppers and they would sit in the palm of your hand, quite unconcerned. Invariably the rockhoppers nested next to the macaronis, whose beaks were the most vicious.

In base, Lambeth, the geologist, continued his glaciological studies. With the help of "Doc," a line of yellow poles, a thousand yards long, was placed at a height of 450 feet above sea level on the surface of the Baudissin Glacier. The men

drilled holes in the ice with an augur. A second line of poles was placed at 1080 feet. This was to detect any back movement of the ice over the ridge near Mt. Drygalski, where a small glacier was forming. In September and October the glacier moved at one foot a day. By studying glacier movements throughout the world, geologists can tell whether the world is passing through a cold or a warm era. The study is necessarily one of years.

To measure the ablation on the Baudissin Glacier, Jim Lambeth designed his own apparatus from a wooden float, three and a half inches in diameter, the mechanism of an alarm clock and an empty jam tin. The float, suspended by string from a pen-arm, was placed on the surface of the ice. The pen-arm wrote on a chart on the clock drum, registering the movement of the float. The apparatus was erected on a wooden frame driven into the ice. Walking over to the glacier every second day to wind up the clockwork mechanism and to change the chart was the geologist's chore. Wind blowing the string affected the operation of the ablatograph, but results were obtained for fifty per cent. of the time. This was considered satisfactory under the circumstances. At the end of October Lambeth found the glacier was being ablated at the rate of a one-hundredth of an inch an hour.

Continuing his investigations into the snowflakes, the geologist detected specimens under his microscope which he described as "small parachutes." One end of the flake was shaped like an umbrella. By making a careful analysis of the snowfalls, Lambeth hoped to assess the amount of precipitation which might be blown away by the wind. Some of the flakes, by their very shape, would cling to the ground. Of course, some flakes were of no recognisable shape. In studying ice-crystals the geologist made an ice-slide in thirty-five minutes.

In September and October we experienced falls of frozen rain, the particles being hard round ice pellets. Lambeth noted the size, type and characteristics of each fall. His infor-

mation would be studied by experts on our return to Australia.

In brief nightly skeds from Saddle Point we heard that the field men were delayed by thaw. In base the drifts were dropping by inches each day. We judged it would be the same at Saddle Point. One night "Swampy" Compton came on the air with a plaintive call.

"Belsen to Dachau! Belsen to Dachau!" he called. We could picture them drying out their sleeping sacks, socks and boots, preparing for the trip to the end of the island.

From base we called the field men every night at 7.30 p.m. If the field men did not reply to the sked, we called at 8 a.m. the following morning. If there was no answer then, we knew they would have started for Spit Bay. In that case, we did not expect to hear from them again for a month. As an emergency, the sked would be maintained each night from base, until the men returned or called up.

On November 1 at base we had an excellent view of the partial eclipse of the sun. The sky was full of grey clouds, but the sun shone weakly at intervals. Photographers and scientists were on duty with their instruments ready. Through dark glasses we watched the moon sailing through the clouds until it approached the sun, a dim blob in the northern sky. We were not equipped to take accurate measurements, but the scientists observed the maximum of the eclipse through the theodolite.

That night the field men did not answer the radio sked. Silence greeted the call the following morning. Dovers and Compton had started over the unexplored glaciers. Meanwhile, in base, "Doc" began forming a second field party—to climb Big Ben's highest peak.

CHAPTER TWENTY-SIX

SPIT BAY

TIME WAS the important factor with the field men. If they were to reach Spit Bay they would have to travel before the summer thaw had a chance to weaken the hard-frozen snow-bridges over the glacier crevasses. The terrain they would have to cross was different from what they had experienced round Cape Laurens. The main part of the island comprised the great mass of Big Ben and its surrounding ice sheet. Year-round snow falling on the long slopes of the mountain covered the glaciers with a firm mantle, hiding the deep crevasses. The snow on the wide mountain top spilled down the sides. It had been that way for hundreds of years; from the time the mountain had been formed, pushed up from the ocean bed by earth movements. A great ice-sheet had been formed in a wide crinoline, whose curves and folds reached every corner of the southern part of the island.

In winter the crevasses were covered by the hard bridges. In summer rain and sun weakened the bridges, revealing the crevasses, some three, some six, some twenty feet wide. The field party could not wait till the summer to travel. If the survey was to be finished before the expedition party was relieved, the men would have to move before the thaw.

While working round the camp, the aneroid barometer was damaged. The pointer was unshipped. They had no tools to make repairs. On October 18 they carried the survey instruments 350 feet, to the highest elevation on Saddle Point. On the eastern side of a wind-swept crater lip, a cairn was built to mark the site of the trig. station.

Dovers and Compton, wearing snow-shoes, made a preliminary reconnaissance of their southern route. Travelling

over the moraine and ice surrounding Mechanics Point, they found a site for the first forward camp four miles down the coast. On the journey they passed near a 1200 feet high bluff, a mile from the sea. They named it Melbourne Bluff, for it pointed roughly in the direction of that city. Crevasses were open on either side of the bluff, where the ice sheet was breaking up. Travelling conditions over the route were good, similar to the Schmidt Glacier a month before—firm snow and hard bridges.

On days of good visibility the men progressed with the survey of Saddle Point area. They found no trace of the reported sealers' track from Mechanics Bay. As the October days passed, the weather changed. General thaw conditions prevailed round their camp. Pools formed in the sunken pot-holes where the tent poles stood. Three inches of water covered the tent floor. The men dug drains to let the water escape to the beach.

On October 23 the two men loaded the sledge with half their field gear and hauled it over Mechanics Bay Glacier, travelling at an altitude of three hundred feet, above the widening crevasses near the coastal ice. The worst part of the trip was hauling the sledge up the glacier snout. In places the slope was as steep as anything they had encountered. To overcome the worst portions, they used two climbing ropes and ice-axes as belays. One man would go ahead, the length of the rope (about eighty feet), and drive the shaft of his axe as deep as he could into the snow. While the man at the sledge heaved and pulled, the forward man took a couple of turns round the axe. While he took the strain, the other could rest. This method of belaying was resorted to on many occasions. It was exacting work, but the only way to get the sledge up the steep slopes. The weight of the loaded sledge was 320 lb. Even half this load made the task a back-breaking one.

Reaching the top of the glacier snout, the men made a sail from a tent pole and ground sheet, and fitted it to the sledge.

The rising wind drove the sledge two miles. At times both men were running to keep up. It was not a careful method of travelling, but a pleasant diversion from the monotonous hauling. The men reached the camp site in the light moraine near Melbourne Bluff, dumped the load and returned to Saddle Point in the face of a fifty mile an hour wind.

The next day was a miserable one, spent trying to dry out their sacks and clothes. Thaw water crept under the Army tent, flooding the floor. The snowline retreated, revealing the blue glacier ice, the green tussocks and the bare rocks. It was a dreary landscape, half white and half grey.

The long white slopes of the ice sheet disappeared in the dull overcast. Only the gaunt rocks and occasional moraine broke the monotony of the dazzling picture. The wet weather held for a week. The men brought up more stores from the beach and weighed down the tent. Under such conditions any trip to Spit Bay was out of the question. Delay was maddening, but they could afford to sit tight and wait. Apart from plentiful rations for their base at Saddle Point, they had a month's food and fuel for the field. The days were spent reinforcing the camp and drying their clothes whenever the sun appeared. At night the men worked on their field calculations. Frequently the quiet of the night was broken by the rumble of ice falls off the Challenger Glacier.

Towards the end of the month conditions began to improve. One day Big Ben was visible for many hours. Carrying the twenty-eight-pound theodolite, the two men climbed to the trig. station. Dovers made shots on the wide top of Big Ben and completed the Saddle Point observations. That night they radioed Atlas Cove they were ready to move south.

Hauling the other half of their supplies up the glacier snout on the afternoon of November 1, the men reached the forward camp site. Again the ice-axe and rope belay method was used to overcome the steep gradient. This load included sleeping bags, instruments, ground sheets, stove rations and fuel. Next day the men visited Mechanics Point to read the

survey angles. The third day out of Saddle Point they moved to their second camp, crossing another glacier two and a half miles wide, hauling the fully loaded sledge. The final leg of the journey necessitated ascending an ice-fall, forcing the men to resort to half loads. The snow-bridges were firm beneath their axes, satisfying them they had nothing to worry about. The heavy toil of hauling was foremost in Compton's mind when he wrote his diary that night.

November 4.—“At the high school in Kalgoorlie the motto was ‘Upward and Onward,’ the badge a Pegasus. Here I am working myself up a 1:2 slope with a ruddy sledge tied to my middle. Up and onward, yes—but no Pegasus!”

What they had thought to be moraines in the distance turned out to be a set of bluffs, a mile long and 800 feet high. The glaciers had overwhelmed the bluffs, cutting gorges. At the bottom the ice foot was covered by deep drift. The men passed above the gorges, travelling on hard *névé*. They made a local reconnaissance, building another cairn half a mile from their second camp. It was a noteworthy point, for there in the distance, past glacier after glacier, they could see a faint line of breakers—the Spit.

There was a small beach beneath their second camp. Here they found the remains of a sealer's hut buried in the snow. For supper they killed a couple of penguins. Snow and freezing rain confined them to the tent for the next twenty-four hours. When the weather cleared, the men approached the next glacier, inspecting the route ahead. The problem of the crevasses was always in the back of their minds. For instance, on November 6 Compton wrote:—

“As long as the crevasses do not greatly hinder progress, we should not find the crossings difficult. However, one decent sort of thaw could weaken the bridges so much as to stop any movement either forwards or backwards. Guess we'll be O.K. tho'.”

Bright sunshine enabled them to dry their clothing. They pushed on at the first opportunity. Over the crevasses,

Dovers' concern was for the safety of the sledge. A man might be pulled out of a crevasse, but if the sledge broke through one of the bridges. . . . The scientific instruments, food, fuel and their shelter were aboard the sledge.

They camped on Fairchild Beach on November 8, after crossing four and a half miles over another glacier. Half loads were used part of the way. The scenery was unchanged—narrow crevasses, dull grey moraine ridges, and the long white slopes of the ice sheet.

Each night, when possible, they camped on mossy flats, soft and warm. Profiting from their earlier mistakes in the field, they did their all to keep the tent and sleeping bags above the snow. In this way they would stay dry. Both men were cheerful. After a week out from Saddle Point, they had travelled ten miles, as the "nellie" flies. Their food position was good. By using fresh water, instead of snow or ice, they had economised half their fuel ration. They were eating well, keeping warm and were fit for anything.

On Fairfield Beach they found an old spar, which they hacked into pieces with a machete, to make a roaring fire. That night they had a bumper tea of penguin steak and eggs. The next day, in glorious sunshine, they climbed over moraine and bluffs to the top of a knobby ridge, 1200 feet, which they named Round Hill. The rumble of avalanches was heard high up on the ice sheet.

Compton, a natural bushman, was in his element when living off the land. He was never happier than when he was skinning seals or grilling penguin meat on an open fire. They had included a small bag of flour in their rations. Now Compton, revealing his hand, made omelettes from the penguin eggs, but he had to use flour to reinforce them. For days the men lived on this diet, generously reinforced with fresh steaks and liver.

During the few periods of visibility amid the general murk the men completed the survey work. Using the right gear, and with their hard-won experience of travelling in snow

country, they had learnt the trick of staying operational in the island's uncertain climate.

On November 14 they hauled half their load to the next beach, camping under Scarlet Hill, 1500 feet. To reach this point, they had to haul the sledge up 500 feet, and then cross a mile and a half over a glacier. Sometimes they had difficulty picking the route. Wherever possible, they avoided the snowfields, where frequent cracks marked the surface. They travelled, hemmed in by the steep mountain side, ornamented with ice-falls and sharp ridges, and the coastal ice, with its yawning crevasses, much ablated and partly filled with snow. The same afternoon they returned for the rest of the load. They made camp in a blinding snowstorm, and were wet and cold when they rolled out their sacks.

Walking along the beach the following day, they found two casks full of oil. The liquid looked like clear honey and smelt of old linseed. Nearby were the remains of other casks of unknown age, and the broken remnants of an iron stove.

Bad weather held the men in this area for the next week. In the tent, by the light of a guttering candle, they checked their field calculations. Sometimes they tired of the work and told yarns. In his diary Compton sketched out a plan of the home he would build in West Australia. At the southern end of the unnamed beach they noticed a bull elephant seal with a red paint mark on its trunk—one of the bulls which had been in charge of a harem in Atlas Cove. The dismal weather had a disheartening effect, judging by the tenor of Compton's diary.

November 19.—“Confined to camp all day by snow flurries and cold winds. Bob was sick, myself not feeling the best. Tried to coax Bob to put something in his stomach, but it was no go. Considerably worried about him. We are a bit far out to have trouble now.”

Compton's fears were soon relieved. Dovers recovered with the improved weather, and they were able to get outside to take a round of angles. From the top of Scarlet Hill they

fixed the position of Spit Point and the outlying shoal waters. A prominent bluff north of Winston Lagoon, which Pilot Mal Smith had discovered, was sighted on the west coast. On November 25 they made their first attempt to break through to Spit Bay, hauling the half-loaded sledge. Skirting the coastal ice, they tried to push through at low altitude. It was a misguided effort over the shortest route. They had made the wrong choice, and met the very crevasses they had spent days avoiding—those with the weak bridges. They tried climbing to 500 feet, but wisely turned back when they realised the hopelessness of the route.

The next day they travelled over the top of the glacier under Scarlet Hill, and then headed south-east to a nunatak in the middle of the southern ice sheet. This route brought them out in the moraine above the old sealing settlement on the west coast. They had to haul the sledge to a height of 800 feet to clear the broken ice. Though the distance was only four miles, it took the men as many hours to haul the sledge.

At Spit Bay the men took photographs, compass bearings and explored the area. It proved a disappointment to Dovers. Instead of finding dry land, as they had anticipated, the ground was soggy, the tussocks tall and ragged. As a camp site for the main weather station it was inferior to Atlas Cove. Waves were breaking far out on the west coast. Though the weather was fair, there was a heavy surf in the Spit. The men made a food and fuel dump, including such miscellaneous items as fishing lines, hooks, mittens, cooking pots, etc. The sealers' settlement, which had flourished during the days of the *Challenger's* visit, was a collection of broken stumps, wrecked planks and rotting timber. A workable grindstone of American make was found. A vice and copper pots and pans lay nearby. The huts provided no shelter. Surveying the long arm of the Spit from the remains of the settlement, the men estimated they could see 16,000 seals. A belt of swampy tussock stretched for three-quarters of a mile between the men and the main lagoon in the middle of the

Spit. Apparently the sealers had made their landings on the beach near the settlement. Two miles up the west coast was Winston Lagoon, ringed by jagged rocks, where the surf was pounding. It was only accessible by crossing the glacier from the nunatak to the west coast. The men could go no further up the west coast, and the same afternoon, much against their wishes, they decided to start the return journey. Their gear was not in good condition. Fuel and rations, to say nothing of the coming thaw, did not permit any further working in the Spit Bay area.

Both men had hoped to be able to round the island and return by the west coast. So little was known of this part of the island that their disappointment was not unexpected. There was a small gap of eight miles still uncharted. It was the area south of Cape Gazert and north of Winston Lagoon. According to the old expedition map, Long Beach and Cape Arcona were distinct landmarks in this region. Their exact location would be plotted from the relief ship off the coast.

The men followed the same route back along the coast, camping at Fairchild Beach in a heavy snowfall. On November 28 they were up early and on the track before the sun had had a chance to soften the hard surface of the snow. They hauled the lighter sledge up the slope below Round Hill, but as the day progressed there was a marked deterioration in the weather. The steep approach to their second forward station was not as difficult as they had feared. They passed their cairn before noon and belayed the sledge down the ice-fall, which had caused so much back-breaking toil on the outward trip. Dovers noticed the glacier surfaces were rapidly breaking. As they crossed the glaciers the crevasses were beginning to open up. Beneath Melbourne Bluff the snow, which had been frozen hard a fortnight before, was now soggy. Snow squalls from the SW were whirling round them as they pulled the sledge to the Mechanics Bay Glacier; a bad trap to cross before they could reach Saddle Point. Both men were very tired from the long day's march. If they had taken the

wise course, they would have camped overnight at Mechanics Bay. Pulling the sledge into the howling gale seemed infinitely preferable to stopping and making camp, but it was a move which nearly led to disaster.

Dovers was leading over a crevassed bridge. Compton was back with the sledge. Dovers trod warily ahead, looking at the ground. Suddenly he saw the snow collapsing under the wide rim of his snow shoe. He was quick to realise the danger, and his shoes held just long enough for him to get clear. Fortunately, Compton and the sledge had not reached a weak section of the bridge. That nothing serious happened was a question of plain luck. However, it was not often the men erred in this way, but other expeditions have shown that only one such mistake need be made.

There was an anxious moment when they came within sight of Saddle Point. They could see no sign of the dark green tent, which had been easily discernible against the white background of the snow-covered ground when they departed. When they drew nearer they saw the green tussock mounds were bare, but there was the tent, neatly camouflaged against the natural background. That night they contacted Atlas Cove by radio, sending telegrams to their families and receiving the messages which had arrived in their absence.

CHAPTER TWENTY-SEVEN

AT LAST, THE SUMMER

NOVEMBER saw the final rout of winter. Days grew longer and longer. Dim grey twilight illuminated the huts at 3 a.m., so you could see to read a book in bed. If you wanted to sleep late, you had to shield your face or bury it under the blankets. Half an hour later the sun's rays came streaming through the windows from the SE. By breakfast time the sun was high in the sky, and you could feel its warmth.

The longer days made all the difference to life at Atlas Cove. Men on the early shift got dressed and went about their duties in the bright, clear morning light. At night after tea we went walking round the beaches or penguin rookeries until the sun sank below the outline of the Cave Bay hills at 8 p.m. Even then, there was another hour of light before twilight descended.

The daytime temperature rose above freezing, so we called it summer. By the middle of the month the big drifts round the camp had shrivelled to mere mounds of dirt and snow a couple of feet high. Water streams ran down from the higher ground round Rogers Head. Gradually the snow-line retreated until moraine hillocks round the Nullabor were bare. Round the rocks and moss clumps the ground was soft and porous; it was like walking on sponge rubber—your boots squelched, but you did not sink above the ankles.

When December came, the snow retreated to the slopes of Mt. Drygalski, above the moraine, and lay like a white cap on the silent crater of Mt. Aubert de la Rue. Summer fogs blew in from the ocean, wreathing the shore, hugging the cliffs, and cutting off the camp like a lonely lighthouse.

It was the picture that had greeted me when I had stepped

ashore with the first landing party a year before. Nothing in the landscape was different. The radio towers and the huts in the small corner of the cove would scarcely be noticeable to an observer a mile away.

We began a drive to clear up the camp. Garbage and old clothing had been thrown away haphazardly on different dumps throughout the area. We decided to clear all the garbage and useless trash from the living area. Great heaps of smashed boxes, old boots, socks, timber, paper and tins had to be moved. There was only one way to get rid of it. We started bonfires well away from the huts.

One Sunday I visited the rockhopper and macaroni rookery at the foot of Mt. Aubert de la Rue. The rockhoppers, only a foot high, were the most comic of all the island's penguins. They were standing on rocks above the water, and high up the scree slope. They were not at all timid, like the gentoos, and were easy to catch. You could grab hold of them by their little stumpy tails. The rockhoppers built their nests in cracks between the rocks and in small caves. The macaronis, much bigger birds, with bright red crests, built their nests alongside the rockhoppers; in fact, both breeds were hopelessly intermixed. Looking down between the niches, I could see the small, red, beady eyes of the rockhoppers looking upwards from the shadows. Occasionally one would jump out of the hole and go hopping off towards another group. At this time of the year the macaronis and rockhoppers were both going through the falderal of penguin courtship. The mating birds rolled their heads from side to side in the ecstasy of the moment, uttering unmusical cries. There were the usual number of birds trying to show off in front of the others, and, of course, the inevitable interlopers being pecked from all sides.

The trip over the Schmidt Glacier to Cape Gazert became a popular day outing. An unusual feature was the mirage, seen from base, which made the cape appear to be divided

into several small islands. One party returned, after seeing at least a thousand "nellies' " nests in the hummocks, and brought back eggs for everyone in camp. It was the start of the egg-collecting craze which spread to every hut. All types of eggs were gathered and blown, including skua, black-backed gull, "nellie," and all penguin eggs, except those of the kings, who, like the emperors further south, lay their eggs late in the summer, hatching them at the beginning of winter.

The burrowing birds returned to the island. The mutton birds and the whale birds, as the sealers called them. They burrowed all over the Nullabor and in the hummocks. Holes were dotted everywhere, like the hoof marks of many horses. During the day the birds lay asleep, safe under two feet of soil. They appeared only in the evening, when their mortal enemy, the far-sighted skua was ready for bed. Some prions burrowed under the tussock, like rabbits. Their eggs were tiny beside the large ones of the "nellie." Most penguin eggs were a pale white-blue colour. The gulls' eggs were a speckled brown.

A spring fever galvanised the camp, stirring instincts and inventiveness, dormant during the winter. Shanghais and bow and arrows were brought into action, quite ineffectually, against the birds of prey. Model boats were floated in the cove. Then there was the "Operation Dead Marine." The number of surplus bottles was becoming a source of embarrassment. We hit on a novel way of getting rid of them, which, at the same time, might have some scientific value. Written in Indian ink and wrapped in waterproof cloth, messages were enclosed in the bottles.

The messages stated briefly that the bottles had been released by the expedition from Heard Island on a certain date. The finder was asked to communicate with an address given at the bottom of the message. The bottle tops were sealed with varnish and mastick. The first dozen bottles

were thrown into the water off Wharf Point. Two days later we picked them up again round the beach of Atlas Cove. The area was abandoned as a launching site for the "dead marines." Bottles were released at intervals from Corinthian Bay. Finally a hundred bottles were floating in the waters of the Antarctic Ocean. According to the information we gleaned from the camp library, the bottles would be carried by the ocean currents to the South Island of New Zealand or the neighbouring islands. If they missed those islands, then it seemed the currents would carry them round and round the Antarctic continent. Perhaps the future will tell.

We ate seasoned roast skua for dinner. It tasted like duck. Catching the birds was no easy matter. Shooting them with shot guns or .303 rifles was a hopeless business. We had tried shooting the penguins, but at meal times we had found the meat was peppered with small shot. A smaller bore sporting rifle would have been ideal for the game.

Round the beaches the seal pups lay together in heaps, head to tail, for warmth. They congregated at Wharf Point, swimming in the morning and evening from the sheltered beach. At times so many pups were in the water they looked like a shoal of fish. The small seals never ventured far away from the shore. They put their heads under the surface, thrashing their bodies and tails, gaining more speed and swimming further each day. Sometimes the bulls or cows would be seen among the pups. One bull was observed forcing the head of a pup below the surface, as if teaching him to stay under the water. From Wharf Point we timed the bulls when they disappeared under the water. One bull was underneath for fourteen minutes before he came to the top for air. It seemed they might be able to stay under water even longer, for they lay for hours on their backs, white stomachs bared to the sky, their heads submerged.

The pups grew so fast that after three months some of

them were as big as the cows that had mothered them. At the end of the mating season the cows retired to the tussock clumps. The bulls lay in lazy heaps.

One day I walked over with Jim Lambeth to inspect his ablatograph on the Baudissin Glacier. We skirted the edge of the inundated flat, passing the remains of the sealers' hut. Patches of snow still lay on the shore of Corinthian Bay. Many pups were about, and, of course, the white skeletons of the unfortunate ones, frozen to death or killed by the birds. We crossed to the moraine hillocks at the base of the glacier. While travelling the beach, the only noise was that of our boots squelching on the sand or splashing through the puddles. Near the moraine you could hear noises from half a dozen places—pebbles rolling down slopes, a jet of water flowing from beneath the glacier ice, rivulets trickling between the boulders. The silence magnified these small sounds out of all proportion. The ground under our feet was soppy, full of moisture. We put on crampons and walked three hundred yards over the ice to the instrument. The ice was cracked in long lines, several inches wide. You could put your ear to a crack and hear the sound of rushing water many feet below. Jim made adjustments to the ablatograph, and we walked to the first rise, where the blue séracs and ridges began. Some were weathered thin as knives; others were deep blue ravines with a beauty of their own. We lingered awhile admiring the formations and the view of the Rogers Head peninsula. We walked back to the flat and along the foreshore. Pups sheltered round the yellow dinghy drawn up high on the black sand. We knelt down and stroked them. Rubbing them with your bare hand, you could feel the warmth of their fat blubber-covered bodies, like living hot water bottles. The pups lay unmindful of our presence, sighing and breathing heavily in their lengthy sleep.

An Australian zoo asked us to take back chicks of each breed of penguin on the island. They suggested the chicks

should be fed on tinned fish and sea elephant meat. There was only one man for such a job—Alan Campbell-Drury, whose way with penguins was something to be seen. Alan took his task seriously and began building an enclosure in the centre of the camp area, which we called Penguin Park. It was fenced off like a chicken run. A small rock pool and imitation rookery was provided to make the inmates feel at home. The first arrival was one of the smallest rockhoppers we had ever seen.

Alan brought the rockhopper back from the Rogers Head rookery. He kept the bird in a box-cage, releasing him throughout the day for exercise. Somehow the rockhopper won the nickname of 'Erbie. While exercising, he would head off in the direction of the rookery, squawking as he hopped, like a mechanical toy, 'Erbie had to be guided back to his cage. After a week he had learnt to return home after his exercise. Feeding the pet proved difficult. Alan tempted him with fish, blubber, chopped sardines, salmon and all the fishy things he could obtain, but 'Erbie would have none of it. If food was forced down his beak, he had a nasty trick of bringing it up again. One day Alan and Aub Gotley went to SW Bay for recruits for Penguin Park. Both men carried large cardboard boxes strapped to pack carriers on their backs. It was windy, and we followed them with great amusement as they toiled round the beach, being blown this way and that. Three hours later they had not returned. We sat down to tea without them. An hour later they were observed, through glasses, coming round the slopes of Mt. Drygalski. The reason for the delay was at once apparent. They were shepherding a pair of king penguins! Heaven knows how they had managed to get them so far. It was a painfully slow business. The penguins had a tendency to travel in curves; anywhere, in fact, except in the direction of Atlas Cove camp. It took another hour to reach camp and corral the kings. Alan and Aub had left SW Bay with four kings, two parents and two almost full-grown chicks. A par-

ent and chick had escaped before they reached Mt. Drygalski. While the kings, with their orange throat patches, were the most brilliantly plumed of the penguins, they were also the silliest. If anyone made noises remotely resembling their queer raucous cry, the birds would always answer.

A pair of inquisitive gentoos wandered near Penguin Park to study the inmates. In a few minutes they knew everything, for they were inside themselves. 'Erbie mounted his small pile of rocks in the pen, making welcoming noises to the new arrivals. Even on top of the rocks he was only as tall as the kings. Alan brought him a companion from the rookery. They soon became good friends. None of the penguins in the enclosure could be persuaded to sit on the eggs. Feeding them remained a great problem. One morning Alan took 'Erbie down to the beach. The little rockhopper was no fool. He lay quiet and subdued in Alan's arms while he carried him. Once Alan put him on the beach it was a different story. 'Erbie was off like the wind. Straight into the water he dived, never surfacing until he had reached the middle of the cove.

Next day Alan went out for a walk without saying where he was going. When he returned he was carrying 'Erbie. In a small cave at the rookery he had found 'Erbie, returned to his mates. Alan identified him by a missing claw on his right foot and oil stains on his white shirt-front. Four other rockhoppers and two macaronis were added to the park population. 'Erbie mounted his small pile of stones, soulfully regarding the confines of his surroundings. All was quiet in the penguin enclosure that night; even the kings stopped cawing. In the morning when Alan inspected his fold, 'Erbie had vanished. In the night he had burrowed under the wire. Not only that, but four rockhoppers and a gentoo had followed him.

Summer fogs blew over the island in the late afternoons. They came up from every quarter, wreathing, thin, white traces of mist round the slopes, hanging low above the wa-

ters in the cove. An eerie vapour drifted into Corinthian Bay, veiling the rocks where we had found the sealers' graves; crude wooden boards placed in the ground beside a mound of stones. Other graves were at SW Bay, all nameless. The boards were the headstones, cracked and worn by the weather. Under the stones were the remains of the unknown who had perished on the island. God alone knew under what circumstances. We had searched nearby for buried bottles or tins; any message which might tell of their fate or identity. We found none. The graves overlooked the glaciers, the gaunt bold cliffs; fitting resting places for the tough men who had worked and lived on the island. Perhaps here lay a sealer who had spoken to the naturalist off H.M.S. *Challenger* in 1873? A nameless soul, long forgotten by family and friends.

It was only a century ago that an adventurer's ship first sighted the island. No attempt was made to land. The hardened Yankee skipper could see the dangerous shoals and reefs protecting the island. He sailed on.

Two years later another American ship reached the island. This time the crew landed to hunt and kill the animals.

The whaleboats took great risks in the surf. Spray froze on the faces of the men straining at the oars. Plunging through great rollers, they steered for their very lives to reach the safety of the black sandy beach.

The sealers landed timber and supplies. They made many trips between the beach and the schooner. Ashore they built wooden huts. They made roofs and placed them over holes they had dug in the ground. They lived in their dugouts, like the men of prehistoric days. They surrounded the huts and dugouts with barricades or rocks and stones as high as the roofs. Nothing man-made could exist on the island without protection from the winds.

They brought ashore oil casks and tanks; barrels for their molasses, flour and coal; hand-barrows with which to collect the long blubber strips peeled off the backs of the dead elephant seals.

The ship sailed away and left the sealers to settle down on the island. They were to stay the summer. They ate their supplies, supplemented by the prolific penguin meat. Penguin skins, with the fat, were used for additional fuel. At first light they would be out patrolling the beaches, rocks and tussock for their prey. They would find a filthy heap of fifteen or more of the elephant seals lying on top of each other. Some of the animals were eighteen feet long and of great girth. They would lie for days in their own ordure. The stench evoked curses from the hunters. The sealers armed themselves with a variety of weapons—pieces of driftwood and lead piping, whips made from the hides of the animals themselves. These they used to round up the beasts.

Down would come the whipping lash on the backs of the sleeping animals. Instantly the slothful dreaming heap awoke to life. With great belching roars, the seals raised their heads and barked their protests at the intruders.

When the men attacked the animals in earnest, they smashed their backs and heads. Now thoroughly roused, the baffled animals turned and belched at their tormentors and at each other. Raising their fore-bodies on their flippers, they opened wide their jaws to emit fearful rasping barks.

As the lash cut into their backs, the bellowing animals slowly gave ground, retreating several paces on their flippers. Lashing and smiting with their weapons, the sealers forced the mob down to the open beach, where they had set up their boiling-down pots. Their arms grew weary with hitting and whipping.

A man with a rifle waited on the beach. One or two of the animals would attempt to lumber their way into the sea. They found all escape was barred by the guard. A bang on the snout from the butt end of the rifle sent the beasts back, raging and belching, in despair.

Those animals that the sealers had neglected while resting in their drive relapsed into their previous state of oblivion.

The presence of the sealers was forgotten. The animal minds had no sense of time.

When the sealers returned from the beach to round up the stragglers, the seals belched and roared in great anger at the renewed assault. The old bulls were stubborn. Some would not give ground until their hides were scarred with bleeding stripes where the leaded whip had cut them.

On the beach the cornered animals opened their mouths and belched. The guard with the rifle pushed the muzzle between the jaws and fired. He walked from beast to beast. Heads collapsed on the black sand like lifeless sacks. The shooter did not waste time. A single shot through the palate was enough to finish a beast.

Even as the slaughter proceeded the animals were unmindful of the fate awaiting them. They disregarded the man with the rifle. Many of them fell back to their slothful dreaming. When the man approached, it was too late. They were rudely brought back to reality by a bash from the rifle butt. Then up reared the indignant, baffled heads with the cavernous gaping mouths. Their belching protests were tardy and useless. Again the rifle fired. Another head slumped to the ground.

Small streams of dark blood ran from the lifeless heads, disappearing in the porous beach. Overhead the carrion skuas and giant petrels circled and swooped above the slaughter, shrieking and screaming at each other.

With their sharp flensing knives the sealers began slicing up the carcasses. They slashed cleanly at the necks, severing the arteries. Blood spurted out afresh, staining the men's forearms and clothing. A red trickle ran down the sides of the dead beasts to the sand. The sealers waited while the blood drained from the carcasses. When they resumed they made quick efficient strokes with their knives. They cut straight down the middle of the back and then along each side. They peeled off the skin and the greasy-looking blubber in long thick strips.

They worked, slashing and cutting at the carcasses. The blubber strips were piled in heaps beside each carcase. A man with a hand-barrow collected the blubber and wheeled it over to the boiling-down pots.

To reach the bellies of the big seals, the men roped the heads and tails of the brutes. Then, heaving and straining at each end, they rolled the carcasses over.

Records show that some of the sealers returned to the island summer after summer. A few stayed through the rigorous winter, loath to return to the civilisation from which they had fled. Those that returned came in the hope that they would be able to amass enough wealth to retire to their native lands without worries for the future. But at the end of each summer it was the same. The temptations of Capetown and Montevideo proved too strong.

On the island men's minds sometimes snapped under the isolation and grim surroundings. The hunting and daily slaughter had their price. Life was hard, stern and relentless, like the climate. Those who became demented were put out of their misery, like the seals.

At the end of the summer the schooner returned to the island. The sealers loaded their barrels of seal oil, the pelts and hides, and rowed back to the ship. Year after year they returned to the island and repeated the slaughter of the seals. Finally the animals were driven off the accessible beaches and they abandoned the island. It lay deserted, forlorn, practically unknown to the world, for the sealers kept still tongues in their mouths.

CHAPTER TWENTY-EIGHT

OUR SECOND CHRISTMAS

ONE AFTERNOON I called on "Doc" at Admiralty hut, on which he had spent nine months rebuilding and extending the structure. He had transformed the interior, making it comfortable and insulated, a good hospital in any emergency. The annexe to the hut had been fitted as a biological laboratory. The shelves were wide, and in case of necessity could be used as spare bunks. Now the shelves were crammed with medical bottles, birds' wings, eggs, dozens of specimens, as well as all the paraphernalia of a consulting room. The "Doc" was at work on his microscope. He had just completed the dissection of a penguin, which had been chloroformed and skewered. "Doc" had found tapeworms in the bird's bowels. He fixed a slide while I peered into the 'scope.

The worms, of course, were long dead. They were ridged, as though I had a sideways view of paper cups jammed into each other. Small whirls on the surface were eggs ready to be hatched. "Doc" had found little blubber on the bird, and only small stones in the stomach. "A mighty hungry penguin, I would assume," he declared. I left the "Doc" hard at work entering details in the medical log.

If a stranger had been able to watch us queuing up for meals at the cookhouse servery, he would have been a puzzled man. The daily conversation was something like this:—

"What's on, worm!"

"Stop yer shovin'."

"I'll have two of these and three of those."

"O.K. Do you want any veggies?"

"I'm here, Norm. I'm here."

"Yes, all right; I've seen you."

"Er bbbub. Er bbbub."

An incomprehensible dialogue, but the usual performance while Norm Jones and the duty "slushee" strove to cope with the demands of the hungry mob.

"Heh, Norm! There's a feather in my soup!"

"Don't sing out or they'll all want one!"

Some of my companions had a way of making amusing noises to signify their intentions. It was a craze which finally became a habit with most of us—queer grunts or barks. This nonsensical language was a harmless safety valve. Much better we should talk a lot of idiotic drivel than be bad tempered. It kept us amused. Nothing could be better than that.

Due to the popularity of the tinned orange juice, the "Doc," as messing officer, introduced a very thorough system of rationing, posting the following notice in the rec. hut.

Orange Juice

"The attention of the messing officer has been drawn to the facts that (1) fruit juice tins labelled 30 fl. oz. contain only 28 fl. oz. (B.P. Standard Measure); (2) small glasses can be filled to $3\frac{3}{8}$ oz. (B.P.S.M.). Based on these facts, the orange juice ration is now 4.66 fl. oz. per man every Wednesday and Friday, except alternate Wednesdays, when the ration is 7 fl. oz. per man. This is 1.4 glasses per man every issue night, except alternate Wednesdays, when the issue is two glasses."

It appeared some individuals had been filling their glasses to the brim, which had upset the "Doc's" careful calculations, but no one knew whether he was serious when he posted the notice.

On the beach at Atlas Cove a gibbet was made from three iron pipes, roped together at the top. Fresh meat was needed badly, so a seal pup was killed. This pup weighed 300 lb. It took the combined strength of four men to lift the meat on the pulley. While the blubber was cut off, the birds assem-

bled. When we threw away the strips, three hundred skuas and "paddies" fought for the scraps. We kept washing the meat down with salt water. The whole operation took two and a half hours, but provided the camp with fresh meat for a week.

Scientists in Australia had asked for samples of Kerguelen cabbage and certain types of blubber from the seals. Jim Lambeth began work on these projects. He built a small still and distilled the cabbage in petrol. The machine he devised for the extraction of the blubber was another example of the triumphs of improvisation by which our scientists overcame their problems. It was a heavy lifting jack working into a cylinder off the wrecked Walrus engine. The contraption was bolted to a wide plank. The blubber sample was placed in a linen bag and rammed into the cylinder. Extreme pressure was applied to the jack, which drove in the piston, squeezing the blubber until a thin stream of liquid oozed from the cylinder.

Meanwhile, Alan Campbell-Drury decided to retrieve 'Erbie again. I went along with him for the walk. We skirted the Wharf Point boulders, passing through the sleeping seals in the tussock and the gentoos on their nests. It was about a mile along the coast towards Rogers Head. We climbed over the rocks until Alan stopped suddenly.

"This is the place," he said, kneeling down and feeling with his hand into a cavity in the ground. Two small rock-hoppers jumped out, hopping away. I looked into the hole. Inside the penguins were chattering excitedly. Alan reached further inside, grabbing one by the tail. He pulled him out and examined the right foot. There was a claw missing. It was 'Erbie. He had returned straight to his rookery. He did not seem at all pleased to see his master, struggling most of the way back to camp. Near Atlas Cove he made a last attempt to wriggle free and nearly succeeded. When we approached the familiar huts of the camp, 'Erbie seemed once more reconciled to his fate. Once inside the Penguin

Park, he mounted the top of his small pile of stones, disdainfully ignoring his unadventurous fellow inmates.

"Squeak, squeak!"

I heard the noise when I woke up at 5 a.m. Normally the sleeping hut at this hour was quiet, save for the breathing of my six companions.

"Squeak, squeak!"

I turned over, trying to dismiss the unfamiliar noise from my mind. Then it came again.

"Squeak, squeak!"

This time I sat up. In the top bunk opposite, Campbell-Drury was sitting up, holding a box. I got out of bed to have a look. In the box was a day-old gentoo chick, four inches of gangling furry limbs. The chick weighed four and a half ounces. Alan was feeding him through a syringe. He had taken the box to bed to keep the chick warm during the night. In the box was another gentoo egg, out of which was poked the probing beak of a chick, half-hatched.

Even the chick in the egg could make a squeaking noise. Alan was feeding them a mixture of canned whitebait and glucose. The chicks had been hatched forty-two days after the first eggs had been laid in the rookery. Alan fitted up an electric hot-box as an incubator for the chicks. He fed them at two-hourly intervals throughout the day.

Every night at 7.30 we called the field men on the walkie-talkie in the "radio-met" shack. We stayed on the air for five minutes, just calling. We then listened out for the same period, in case there should be an answer from Saddle Point.

Exactly four weeks after their departure the silence was broken. Macey received an answer from Compton and Dovers.

" 'Swampy' here. 'Swampy' here," came the clear tones in the head-set.

"O.K. Go ahead, 'Swampy.' "

"We're just back from Fairchild Beach. We reached Spit Bay and surveyed the west coast as far as possible. We're pretty tired now."

It was the news we had all been waiting to hear. Then Bob Dovers came on.

"We just beat the thaw back to Saddle Point," he said.

Macey read the men the telegrams which had arrived from their families.

As soon as the weather cleared efforts were made to bring them back to base. After a week of bad weather in Corinthian Bay, Compton and Dovers were returned by dinghy on December 9. Both looked well, but they were glad to be back in base.

The anniversary of our landing at Heard Island passed off uneventfully. Our minds were on other matters—the trip up the mountain, the relief ship some time in the New Year, Christmas and thoughts of home.

"Doc" had embarked on lengthy preparations for the mountain trip. Another Nansen-type sledge had been constructed after the painful labour of many weeks. Tents had been modified, provisions weighed and parcelled, ropes and equipment tested, clothing altered for the high altitude. In fact, all was ready for the party to leave camp when the thaw came.

Bob Dovers, on his return from Spit Bay, strongly urged the climbers not to attempt the trip, owing to the danger of summer avalanches. From their camp at Saddle Point the field men heard continual falls of snow and ice along the whole glacial front at all times of the day.

On December 13 I distinctly heard the noise of falling avalanches at 2 a.m., while lying on my bunk. "Whoof! Whoof!" It was like the dull sound of distant thunder. Several others heard the noise, commenting about it at breakfast.

A meeting of the Alpine Club—Gilchrist, Jacka, Macey and

Lambeth—was called. In view of the position, it was decided to abandon the project until January, when the crevasses might have settled down. The ordinary routine of the weather and scientific work did not enable the climbers to delay their plans indefinitely. More avalanches were observed from base camp. These were noted throughout December.

Campbell-Drury continued raising his brood of penguin chicks. The chicks soon learnt to eat out of his closed fist, and slowly began to gain weight. It was a difficult matter feeding the king penguins. Gotley would sit on the parent bird, holding it between his legs, while Alan pushed the food into his opened beak with a pair of tweezers. Through this method of forced feeding, the parent bird learnt to eat bully beef, glucose and blubber. The parent bird never liked these meals, cawing all the time and doing his best to peck the gloved hands holding him. While he was being fed, the chick kept hopping round in excited fashion, making weird crying noises.

As soon as Gotley got on his feet, the penguin sprang up in heights of outraged anger. When the penguins were left alone, the chick would worry the parent bird for food. A few minutes later the parent would bring up the food and feed the chick, beak to beak.

It was a relief when the kings began to eat. For the first fortnight of their stay in Penguin Park they had refused all food. Living on their blubber, the kings had grown thinner and thinner. Under force feeding the birds seemed to gain weight. Then a disaster came. A strong NE gale at the end of the month blew down the fence surrounding the park. In the morning all the penguins, including the kings, had vanished.

An important side of the weather investigations was the measurement of the ozone by the expedition scientists. Ozone is formed in the high stratosphere and is brought

down by convection. The ozone content of the air is thus an indication of its history and origin—polar or tropical. In the lower levels of the atmosphere the ozone is destroyed by the condensation nuclei, the dust and smoke of cities. The Heard Island measurements were important, because they took place under conditions in which the decomposition of the ozone did not vary as much as in the cities, where the atmosphere is contaminated.

At Heard Island the scientists found the ozone content was approximately five parts in one hundred million, a figure several times greater than a similar reading made in Melbourne. Jelbart had a major difficulty to overcome before he could set up the apparatus in the cosmic ray hut. Several small glass parts were damaged during the landing operations. It was not until Macey surprised the scientists one day with his glass-blowing ability that replacements could be made.

A constant air stream was sucked through the glass apparatus, in which the ozone content of the stream was absorbed by potassium iodide solution. The amount of potassium iodide used in this reaction was then determined by standard methods of micro-chemical analysis. From this figure the ozone content was calculated.

The determinations involved careful checking and precise operation of the equipment. Determinations were made under all weather conditions, several series being made at two-hourly intervals during the passage of cyclones and anti-cyclones. Particular interest was attached to readings obtained during these periods of varying atmospheric pressure.

On December 23 hurricane gusts swept Atlas Cove, sending willie-willies of spray racing across the water and along the cliffs of Cape Laurens. It was just like the old days of winter, though now the drift was thinner and mixed with gravel and lava dust. Huts shook, windows bulged and aeri-

als moaned. The drift came right across the flat from SW Bay, but the temperature was too high for the snow to stay long on the ground.

The weather cleared the following day. Aub Gotley and I took advantage of the break to spend a few days away from base, camping on the west coast of Cape Laurens. At West Bay we saw a lone combeates seal. We found the coast as difficult to travel along as the field men had reported months before. Great boulders and stones littered the narrow strip of ground between the scree slopes and the sea. It was heavy going on the feet, but we were in no hurry. While walking along the boulder beach, stones, loosened from the crumbling cliff face, were running down the scree slopes ahead of us. One stone bounced in front of Aub and rose five feet in the air. He called out to me, but I was too busy struggling with a heavy pack to pay much attention. Next moment I was on the ground, black dots coming and going before my eyes. My head felt as though a bag of cement had been dropped on it. I put my hand up to my forehead and brought it away sticky with blood. Aub dropped his pack and returned to help me. Fortunately, I must have been born with a thick skull for, except for two long cuts, the damage was not serious. That night we camped on a flat grassy patch above the beach. In the clear evening sun the mountains were white and calm. Across the water, above the treacherous crevasses of the Schmidt, the highest peak of Big Ben was clear, like a white camel's hump in the clouds. It was a beautiful setting for a camp. As we cooked a meal on the pressure cooker, penguins hobbled up from the beach. A track, as well defined as any in a landscape garden, led from the beach for a hundred yards to the rookery. Jim Lambeth, the geologist, had first seen the path, and rather incredulously we had listened in the rec. hut when he said: "You haven't seen penguins until you've been along the west coast!"

Now here they were, hundreds and hundreds of them,

hopping up and down the path. In the rookery they were as thick as ants. They were mostly the orange-crested macaronis. With vicious beaks and strong flippers, they used both to attack intruders to their rookery. In fact, they even followed us, darting at our putteed ankles and boots. We retired to our tent and rolled out our sacks, as the sun sank, a crimson ball in the SW.

I was up early on Christmas morn. All night long the incessant raucous squawks of the penguins had kept me awake. When I crawled through the narrow funnel of the tent at 4 a.m. it was to gaze on a vastly different landscape. Slushy snow covered the ground. Dull, leaden skies obscured the white crags, throwing a gloomy pall over the country. Even at this hour I could see hundreds of the penguins hopping up and down the rookery path. I stayed looking at them in wonder. I tried to calculate how many there were. There were about three hundred on the path at one time. Supposing it took twenty minutes for a penguin to reach the top of the path, that seemed to work out at about 24,000 penguins using the rack each day. My calculations came to nought, for I saw many penguins came half-way down the track. They stood around for a while, and then turned round, apparently forgetting their previous intentions, for they hopped all the way back to the rookery. The penguins had been using that track for hundreds of years. Who was I, a mere visitor to the island, to understand the motives and habits of these curious creatures?

It was a dismal morning. Clouds hung low above the ground. In the distance the white lava gullies lay between us and Red Island; bog and swampy tussock led to NW Cape. A vastly different picture from the previous evening. How quickly the mood of the island could change! The mood was infectious. A few minutes later when Aub awoke, he said: "Merry Christmas!" His greeting made me feel bad tempered.

"What's there to be merry about?" I growled, filling the container with snow, so that in half an hour we might enjoy a cup of tea.

Christmas Day was a different affair in base. Heralded by a strong NE wind, with sweeping drift, despite the cold day, something of the spirit of Christmas was brought into the rec. hut. It came over the radio. Every station the men tuned in was broadcasting carols and wishing listeners the season's greeting.

Norm Jones had been hard at work in the cookhouse in the preceding days. When he posted the Christmas dinner menu nothing was lacking—whitebait mornay, roast seasoned skua and ham, special pudding, mince pies, cakes, nuts, raisins, cigars and liqueurs. The tables in the rec. hut were arranged in an L-shape and set with paper serviettes brought down for the previous Christmas. There were no speeches, toasts or special decorations. It was a hearty meal, which left the stomachs full and bloated. The men heard a special broadcast from Melbourne. The news over the air interested everyone—the relief ship would arrive in the first week in February! So excited was Norm Jones, he dashed off a telegram to Expedition Headquarters.

"Please take every precaution ensure safe delivery incoming cook. Pack in cotton wool. Greetings all. Jones."

CHAPTER TWENTY-NINE

THE NEW YEAR

ONLY TWO or three men were up at Atlas Cove when 1949 came to the island. I was on the radio watch and was working Sydney. At the end of the message I tapped out: "Happy New Year, O.M. All the best." As I finished the signal, the 24-hour clock on the wall pointed to "00"—an unusual time, but the camp clocks were made for service use and that's the way they count midnight in the forces.

The Sydney operator came back at once:

"We had New Year five hours ago, but all the best to you chaps down there."

Exactly one minute later I turned off the Diesel, plunging the camp into darkness. As I left the engine shed, a lone celebrant's voice filled the air with the strains of "Auld Lang Syne"! It was a brave effort from the rec. hut, a protest against the quiet passing of the old year.

The year opened full of difficulties for Alan Campbell-Drury, striving to assuage the appetites of his growing chicks. He had four of each type, and they were gaining weight at the rate of a pound a day. One of the gentoo chicks was observed eating small stones and a cigarette packet, but, of course, their favourite food was fish, and tons of it!

Alan fed them on bully beef when the fish was short, but there was no satisfying their appetites. The fish supply was somewhat unreliable. The fishermen, Carroll and Jelbart, returned one night with 53 codfish, which they had hooked in half an hour at Cave Bay. Sometimes they returned with two or three fish, scarcely a meal for the chicks. All the fish had to be cleaned and filleted. The chicks could only swallow soft food, and in their natural state lived on the small pink

krill. One of the chicks which Alan had reared since he was only two days old had an extraordinary affection for him, following him wherever he went round the pen. It was noticeable how quiet this penguin was, compared to the birds which had been brought into the camp when they were three or four weeks old. This chick was easier to feed than the newcomers, who took longer to become used to their surroundings.

Frequent rainstorms flooded the Nullabor, turning it into a lake, cutting off Rogers Head peninsula from the rest of the island. All the pups had disappeared or grown up, the cows had retreated to the inland. On the beach the elephant bulls played and squabbled, revelling in the mud and dirty water, like African hippopotami.

Demands on the manpower available in the camp during January put consideration of climbing to Big Ben Peak beyond the realms of possibility. There was too much work to be done round the huts, to say nothing about the routine operation of the weather station.

Apart from the sporting aspect of the mountain journey there was a scientific side to the trip. Fred Jacka, the physicist, had hoped to take special photographic plates to the top of the mountain. The plates were made with an emulsion much thicker than ordinary photographic plates. Placed inside a light-tight box on a vertical plane, the plates would register the incoming cosmic radiation. The particles would cause ionisation and dissociation of the emulsion. After development of the plates, the track of the particle would show as a dark line on the negative. The method had proved useful in showing the nature of the interaction processes between cosmic radiation and matter. Scientists believe that the primary source of cosmic radiation is probably of one type, but, due to interaction between the radiation and the earth's atmosphere, the radiation which reaches the surface of the earth is made up of different particles. The particles

which come from distant space are different from those at the earth's surface. The expedition scientists had hoped to be able to learn something of the nature of the radiation at the height of Big Ben. As this was now out of the question, Jacka decided to take the plates to the top of Mt. Olsen, for even at 2000 feet there might be important changes in the radiation.

On January 7, with the sun high in a cloudless sky and a gentle breeze from the east, "Doc" Gilchrist and Fred Jacka left camp early. As they rounded Atlas Cove, Mt. Olsen stood dead white against the deep blue background. A thin wisp of cloud traced a lazy trail above the table top. Even Big Ben was clear, shining in all its white magnificence. The men carried their lunch, crampons, and 80-foot nylon rope, and their axes. The scientific apparatus was sealed in an aluminum container in Jacka's pack. In addition, they had cameras and binoculars.

Before reaching the scree of the razorback between Mt. de la Rue and Mt. Olsen, they noticed a baby sea leopard on the beach. Climbing diagonally up the scree, the men saw a constant trickle of pebbles falling from the bluff above their heads. Loosened by the summer thaw, the pebbles fell as the damp soil began to dry in the sun. Atop the razorback they approached a broad platform two acres in extent, partly moss covered, and at the foot of the main snowdrifts, which ended at 500 feet above sea level, along Cape Laurens.

The moss was dotted with holes of the burrowing petrels. The ground was sodden with water from the snowdrifts higher up the mountain. The men ascended the first big drift, kicking steps all the way. It was hard slogging in the soft snow. Roped, and wearing crampons, they cut horizontally across the valley separating Sister One from the main peak of Mt. Olsen. When they hit the east ridge, the upper part of the mountain was obscured by mist. The wind had swung round to the north, and the mist was thickening. Visi-

bility decreased until the edges of the ridge up which they climbed were shrouded in white cloud. Higher up the snow was firmer, making progress faster and easier. As the edge of the ridge disappeared in the whiteness around them, the climbers thrust the shafts of their axes deep into the wet snow, leaving an oval blue-black hole. Provided no powder snow blew in, the holes would be easy to pick out on their return journey. It was a useful precaution, for before they had progressed much higher, visibility had been reduced to 40 feet—half the length of their climbing rope. Neither climber could see his partner, and under such conditions it would have been folly to proceed. It would have been difficult to retrieve the photographic plates had they been deposited in the snow in such poor visibility. Reluctantly the men retreated along their marked track. They emerged from the clouds at the thousand-foot level. Here they deviated to the west, seeking an approach to a rookery of black-browed albatrosses. Three previous unsuccessful attempts had been made to reach the rookery from the base of the Cape Laurens cliffs. The rookery stood on top of cliffs which fell sheer for eight hundred feet. It was quite inaccessible to ordinary climbers. By travelling along the main cliffs of the cape at a height of 900 feet, Gilchrist and Jacka were able to reach the rookery from above. They had to traverse two small glaciers, the first containing many crevasses, some four feet wide, mostly hidden by snow. The larger and more conspicuous crevasses were avoided, but twenty smaller ones had to be negotiated before the men reached a point above the rookery. This was accomplished partly by sliding over the ground on their stomachs.

The rookery was situated right on top of the solid basalt cliffs, perpendicular to the flat rocks and the grass-covered floor of the valley below. Apparently the young albatrosses must fly at their first attempt, for there was no other way they could leave their nests. Where the men stood, two hun-

dred feet above the rookery, the rocks were heavily weather-worn. A long scree led from the broken cliff tops down to a rock chute to the south of the rookery, a lonely eyrie set in wild and scenic surroundings.

Rocks, snow and debris falling through this chute had formed a great cone against the basalt cliffs. By carefully circling the rim of the scree they managed to approach the platform of the rookery, ten yards long by five yards wide. Only a slight wind was blowing, but as a fall meant a drop of seven or eight hundred feet, the climbers stayed roped, one anchoring with his axe while the other observed or photographed. The rookery itself, covered with *azorella* moss and *poacookii*, provided a firm footing. There were nearly a hundred birds sitting on nests of closely compacted mud, *poacookii* and guano, nursing black-billed, down-covered chicks. There was no room to rent in the rookery for each bird had a wing span of seven feet. The albatrosses made no protest against the intrusion of the climbers until individual nests were approached within three feet. Then the birds made loud clapping noises with their beaks, as though trying to spit. The other birds made no effort to leave their nests, gazing at the climbers with curious unconcern.

After securing photos. the climbers huddled under a large boulder out of the wind and ate their lunch of corned beef, peanut butter and chocolate. After a rest they climbed two hundred feet back to the scree and headed for the Jacka Glacier, leading into the valley below the albatross rookery. The descent down the glacier was one of the highlights of the day's outing. The men slid five hundred feet down a snow-drift—on the seat of their pants! At the valley they looked back to the cliff tops, now wreathed in dull clouds, where the great wandering birds had made their home. Before resuming the march back along the coast, they found a dead albatross lying on the valley rocks. Jacka still carried the plates in his pack, but both men had enjoyed one of their best days on the island.

On the same day the field men—Dovers, Compton and Lambeth—made an attempt to reach Saddle Point in the dinghy. They hoped to return to Spit Bay and complete geological and survey investigations before the relief ship arrived. If necessary, the ship would pick the men up at Spit Bay. A small surf was running when the dinghy left Corinthian Bay, but there was no cause for worry. In the morning sunshine the men were optimistic about their chances of landing their equipment at Saddle Point. However, before the boat reached Church Rock, the outboard motor began to play up. Johnny Abbottsmith tinkered with the motor, while Dovers took the oars. By the time motor had been restarted the men in the dinghy could see a field of ice stretching for hundreds of yards off the point. Some of the 'bergs were bigger than the camp huts. It was the worst ice the men had seen. As they would have had to row through the ice to reach the beach, the men were forced to return. The heavily loaded boat was too hard to manoeuvre, and could easily have been crushed between the ice floes.

The men returned to the beach rather disheartened, as the day had seemed such a promising one. However, a NE wind blew in to put an end to further attempts that day. The following day the field men were at Corinthian Beach early in the morning, but again surf and ice off Saddle Point thwarted the effort.

A number of fur seals were seen on different beaches during the month. One small seal, about three feet long—we thought it was a New Zealand-type seal—was carried into camp by Keith York in his windproof jacket. He had seen the seal at Wharf Point and had made friends with it. The seal was kept in camp for two days and thoroughly examined before being released again in Atlas Cove. Several Weddell and crab-eater seals were noticed on the beach at West Bay. Perhaps one of our most interesting visitors, or pets, was a skua chick which Bob Dovers brought into camp. Campbell-Drury, being so successful with the penguins, offered to feed

the small skua. It soon took to bully beef and fish remains. The chick was a small brown fluffy ball, with the most piercing black eyes imaginable. It was really comic to watch the chick—but how different from its grown-up parents! Even the skua chick was seen eating small pebbles.

From the top of Rogers Head Jim Lambeth saw a leopard seal snaffle a penguin outside the breakers. The penguins jumped out of the water, like flying fish, swimming in schools. The leopard lurked off-shore until one of the jumping penguins swam almost into his jaws. The leopard played cat-and-mouse with the penguin, releasing it and catching it again, swimming round in wide circles, while the wounded penguin struggled to escape. The leopard easily outswam the penguin.

In camp Abbottsmith, the engineer, was busy overhauling the Diesels, spending long hours in examination and adjustment. Macey began a similar overhaul of the radio equipment, including the emergency installations. Telephone lines were laid round the camp. Gangs of men were mobilised to strengthen the rock barricades round the huts. Scattered timber on the beach was assembled into separate piles. With our plentiful reserves of oil and fuel, the wood was not likely to be of much use to us, but there was no telling how it might be used in future years.

Expedition members began collecting their specimens and writing up their book work. Lambeth's rocks were crated in wooden boxes; "Doc's" bird skulls, fishes, animal intestines and shell collection were boxed; others assembled their personal collection of eggs, stones, sealers' harpoons and knives, and other paraphernalia ready for return.

On January 13 Fred Jacka, accompanied by Jo Jelbart, left camp early with his photographic plates, bound for Mt. Olsen. It was a dull morning, but there were adventures ahead.

At Sister One they swung to the western side of the main ridge to avoid the crevasses which had baulked Jacka's first

effort. The snow was soft, and they sank into their knees as they neared the top. No crevasses were sighted, but a strong wind was blowing. Nearing the cornice at the top, the climbers returned to the ridge. It was their only way to reach the flat table top. The wind was so strong both men dug their axes deep in the snow. Lying flat on their faces, they gripped their axes as the gusts swirled about them. Jacka felt himself lifted from the ground by one gust, as though he was being borne away on the air. They were using the eighty-foot nylon rope. Slowly Jacka edged up the ridge to the white table top, crawling on his hands and knees. Blowing drift and snow fogged his goggles, so he tossed them into the air. Jelbart, anchored with all his weight on his axe, watched his fellow-physicist reach the flat top. Both men estimated the wind at 100 m.p.h. Neither of them dared stand up. Jacka scooped out a trough in the snow with his hands, thrusting the packet of plates into the hole. With a small mallet he drove four wooden pegs in the snow to support the package, leaving two more pegs as markers. He turned round and crawled back to rejoin his companion. He had been on the top for five minutes at the most, but conditions could not have been worse. The men descended the eastern ridge, and came down slipper-dip fashion the rest of the way, precipitating a small avalanche which raced them down the slope like a foaming breaker.

In the middle of January the French expedition ship, *Commandant Charcot*, passed several hundred miles to the north of Heard Island on her way to Adelie Land. We were in touch by radio for several days, exchanging greetings and weather reports.

January weather was more dismal than it had been the previous year, with days of low-lying clouds, mists and rain. Though it was the middle of the summer, the sun was a fugitive in the overcast. The daily sunshine was 1.8 hours; less than we had experienced in September. January was the wettest month, with 670 points being registered. There was

one factor about the summer time though which made life full of interest—the presence of so many birds. Before I had never been interested in bird life, and there were others like that before they came to Heard Island. We lived so near to the very beginning of natural existence that it was physically impossible not to become interested in the activities and behaviour of the birds and seals. In the tedious months of winter the low-flying “nellies” and cheeky “paddies” were our only bird companions. Then, when the seal pups appeared, slowly the birds returned.

I remember with what delight Norm Jones hailed the return of the skuas. It was a sign of the change of season. Then as weeks passed the black-backed gulls, the terns, black-headed and fleet, and other unidentified birds returned. Inside the cosmic ray hut a two-hundred watt globe was burning. It threw a bright beam of light out of the window. Every night you could see the burrowing whale birds flying in and out of the light. If you walked into the tussock hummocks, shining a torch in the air, the whale birds would come and fly in and out of the beam. A walk round Atlas Cove or to the nearby beaches was always full of interest. Cape pigeons, which seemed to fly around in flocks about fifty strong, would be fishing for shrimp or small jellyfish right in-shore. They paddled round like ducks in the shallow water, flapping their checker-board wings to hop over the wavelets just before they broke; the timid black-backed gulls, majestic in the air, yapped and cried when you approached their nests, which they build on the foreshore rocks. The birds circled the air above their nests if there were chicks there, providing a protective air cover against the vicious skuas, whose main job in life was to make certain the other birds and penguins did not over-populate. The black-backed gulls banded together, and sometimes there would be twenty or thirty of the birds flying above a nest warding off the skuas. Two of our party caught an inquisitive light-mantled sooty albatross on the top of Mt. Aubert.

They brought the bird back to "Doc" for examination and measurement. The bird's outspread wings were over 7 feet 2 inches long. "Doc" sketched the bird's magnificent head before releasing him to the freedom of the air.

Whenever one felt down in the dumps through the isolated life in the island, the best laughs were only half a mile from the camp. Many times I visited the penguin rookery there and sat down to watch the diverting antics of the inhabitants. I always returned to camp in better spirits. The penguins were so fascinating to watch they pushed your own thoughts and black moods right out of your head. By the end of January the gentoo chicks were as big as the parents. They still possessed the fluffy down of their birth, but patches of feathers were appearing on their heads and near their beaks. At three months old the chicks put on the funniest show in the world. Only a few parent birds were left to look after several hundred chicks, while the other parents were fishing. This left thirty or forty chicks to each adult penguin, who had to feed the hungry mob. The birds tossed their heads right back in the air, stretching their necks to bring up the food. As soon as this became apparent, there was a mad stampede from all corners of the rookery in the direction of the food-vomiting bird. Some of the fat chicks travelled as fast over the hummocks as any human, in a headlong scramble for a meal. There was no assuaging their gluttonous appetites. The chicks nagged and worried the sentinel birds for food, approaching them with beaks open, squawking. The adults had to drive them off with their flippers and beaks. While there was this see-saw movement of chicks from one side of the rookery to the other, the ever-watchful skuas hovered above, ready to pick off an unguarded chick and fly off with him. The adult birds banded together to meet the menace, doing their best to concentrate the chicks in some sort of group which they could protect. Inevitably, their efforts could not safeguard all the chicks.

Jo Jelbart conducted a final investigation of the penguins'

supposed love of music. In Penguin Park at the time there were six stately captured king penguins. Armed with his clarionet, Jo squatted on a nearby hummock, running off trills and toots on his instrument. He continued playing for several minutes. Hearing the unusual noise, several men left the huts to see what was happening. This was the only practical accomplishment of the musical overture. As for the penguins, they moved neither backwards nor forwards, but continued to stare at the landscape with complete indifference.

CHAPTER THIRTY

"THE SHIP! THE SHIP!"

THE REC. HUT radiogram was grinding out the tunes. The popular records had been played so often, we knew every chorus. The amazing thing was how we managed to get any noise from the instrument at all! Two sapphire needles had been broken in the first week ashore; since then a futile search had been conducted at different periods for gramophone needles. There were none to be found. Instead, we improvised with bamboo needles, made from pieces of a fishing rod or with similar wood found on the beach. The bamboo needles would play two or three records and then had to be shaved with a razor blade. Our surplus sewing machine needles were tried successfully, but were only used on well-worn records.

It was an evening, one of the last in January, when we received our first definite news of the relief ship's position. Since leaving Melbourne on January 21, the landing ship, now named H.M.A.S. *Labuan*, had been the centre of all thoughts and the subject of incessant speculation and discussion. A five-days' radio black-out had disrupted communication with Australia. Not a single Morse note or broadcast station could break through. Such silence at that critical moment, when we were aching for news, led to an outburst of pessimism.

The black-out brought a minor compensation in one of the best auroral displays seen on the island. For two nights long green and light red beams illuminated the northern sky. The corona of the display seemed right above the camp. Long snake-like spirals moved across the lighted sky.

In the rec. hut a chart had been posted on the wall, show-

ing the relief ship's anticipated course. We hoped to follow her progress, day by day, along the 3500 miles from Melbourne to Heard Island, but during the five days' black-out no news was heard of the ship.

Everyone in camp was estimating or guessing the ship's position. Some prophesied the ship would steer a Great Circle course; others plumbed for the direct route to Heard Island. Everyone had a different idea of how far the ship had travelled towards us. The ideas varied according to one's personal nature, pessimistic or optimistic. I was on radio watch when the black-out finally lifted. I had not been listening long before I picked up a position report. I kept the news to myself, and told the others to gather in the rec. hut.

“Have you got a position, Art?”

“Where is she, mate?”

The eager faces crowding round the wall chart told their own story. Pencils were ready. The first position of the relief ship was an historic moment. It would be marked in red and underlined.

“Yes, I've got a position,” I said. “The ship's at Hobart with engine trouble!”

Dismay and complete disbelief registered on the faces pressed round the chart. My news threw a complete damper on the gathering. It took many minutes to convince them the report was authentic. Sadly they marked the position.

Hobart? Engine trouble? How long would it be before the ship was ready again? Days? Possibly weeks? For hours the discussion raged in the rec. hut. Then someone had a bright idea.

“Are you sure it's our ship? It could easily be the French ship, you know!”

That was true, too. We knew the French expedition ship, *Commandant Charcot*, was about due in Hobart. My message had only referred to “the expedition ship.” It had not mentioned L.S.T. 3501, or H.M.A.S. *Labuan*, as she had been re-christened.

The whole camp lived for the news from the next radio sked. When the information came through, it was apparent at once that the reference had been to the French expedition ship. News about H.M.A.S. *Labuan* followed a few minutes later.

"She is due at Heard Island on February 5. She is now 500 miles south of Albany."

The mappers ran back to the rec. hut with dividers and pencil, plotting the ship's position on the wall chart.

The blue circle on the map looked good. Once again the ship's possible speed and course were debated. All our interests centred on that blue circle, which moved slowly south in the following days.

Feeding difficulties continued to bother Campbell-Drury and his penguins. Abbottsmith was looking after the king penguins, but each one of them could eat a 30-ounce tin of bully beef at a sitting. It was literally a sitting, for one man had to sit on top of the big birds, while the other man forced the bully down their beaks. It was a good afternoon's work to feed all six of the kings. The bully filled out their stomachs, but did not satisfy them. Fortunately, the penguins could go for a long time without a meal, as they had plenty of blubber on them when they were brought into the camp. Still we wanted to take them back in good condition, but there was no substitute for the fish and shrimps which they could catch in the ocean. All kinds of tinned food were tried, but none really satisfied the birds. Seal meat proved to be the best food. Fish was procurable on certain days, but had to be gutted and filleted.

The chicks, five rockhoppers, gentoos and macaronis thrived in captivity. The small rockhoppers were as playful as kittens. Though only a few weeks old, they could hop on to boxes and tins, playing hide and seek among themselves. When Alan Campbell-Drury went into their small pen at feeding time, the chicks rushed to him from every side. How

different from the rookeries, where the chicks fled in a body at the approach of a man! At other times the chicks crowded the wire cage, pushing their beaks through the apertures, squeaking and squawking for food. If you put your finger through the wire to scratch them, a dozen beaks would peck it.

Round the camp preparations were being made to hand over the weather station to the incoming party. There would be no break in the transmission of weather reports. The meteorological equipment was checked. The cosmic ray apparatus was to be returned to Melbourne. The physicists had records covering forty-four weeks, the most comprehensive made by an expedition engaged in this type of scientific research. The apparatus was dismantled and crated into the boxes in which it had been brought ashore. The ozone readings were to be continued by the new men.

An inventory was made of the equipment in the two store-huts; oil drums were counted; food piles itemised; in fact, every item in the camp was registered. We finished clearing up the compound, burning rubbish in an incinerator.

In the workshop the "Doc" began a long overhaul of his motor cycle, dormant during the year in the spare Diesel hut. Penguins were mounted and boxed ready for presentation to Australian museums. We began our laundry for the trip home, pressing civilian suits, crumpled after months in kit-bags and suit-cases.

When February came round, Norm Jones made the final ticks on his calendar in the cookhouse. He had posted it the first day he had come ashore and established the temporary cookhouse in the Admiralty hut. He had been crossing off the days throughout the year.

"That's 400 days I've counted. I've done 3000 wash-ups. Surely there can't be any more!" he declared.

Walking near Wharf Point with Norm one day, we saw a ringed penguin on the stony foreshore. It was the first one we had seen there since the first summer. Norm chased the

ring towards me. He was easy to catch and tamer than most gentoos. I carried him back to the camp to show the boys, but was in such a hurry that I stumbled and fell on the track. Fortunately, I fell in such a way that the penguin was unhurt. I took him up to Penguin Park, where everyone gathered to look at him. He was smaller than the gentoos, more tubby, and the distinctive black lines round his eyes gave him a curious appeal. He made a noise more like a puppy than the noise of the gentoos, which sometimes resembled that of a braying ass.

We received a message from Melbourne that no fish was being shipped aboard the relief ship to feed the penguins on the return voyage. A request had been made for 300 lb. of fish to feed the chicks and kings. Due to lack of refrigeration space on the *Labuan*, it had not been possible to do this. For some reason or other, this information had not been despatched at the time of the ship's departure. It was a hard blow for Alan Campbell-Drury, who had spent weeks rearing the chicks. The job was never a clean one, but he had had the satisfaction of seeing the two or three days' old chicks blossom into fully grown young birds. Fish was the only food that would give the young chicks an even chance of surviving the voyage back to Australia. Alan had often been busy till midnight feeding the chicks, who had learnt to nibble and gobble the squashy bully beef from his closed hand. When two of the chicks fell sick through exposure and inadvertently drinking impure water, Alan had kept them warm inside the home-made incubator, nursing them back to health. A strange affection had grown between Alan and some of the chicks. Whenever he approached the cage, they would open their beaks in a welcome cry. Alan's favourite was a gentoo chick, which he called "Charlie." "Charlie" had grown up in the camp a day after he came out of his shell. He was quiet and friendly, never pecking at you or trying to hit you with his flippers, like the untamed birds in the rookeries. "Charlie" and Alan were great pals. When

"Charlie" hurt his leg and could barely hobble round the small pen, it hurt Alan as much as the chick. Alan picked him up and felt his leg, but there was nothing he could do to help him. "Doc" examined the leg and found nothing broken. "Charlie" was given a special diet and slowly trod the road back to better health. It was then Alan received the news about the fish. To find enough fish at Heard Island was an impossible task.

Next morning Alan loaded the chicks into the bicycle-wheeled go-cart and sadly pushed out across the flat to the Cave Bay rookeries. In their native surroundings the chicks would be fed by the adults for the first time in their lives. It was their natural habitat. With fish and shrimps they would thrive until they were fat. Then on the approach of winter they would waddle down to the beach with their companions, swimming away into the unknown seas.

A dozen crystal streams fell hundreds of feet down the side of the Cape Laurens cliffs. In the summer thaw the snow-line had retreated from the edge of the precipitous coast. The waterfalls fell to the scree, long silver lines, breaking the monotony of the gaunt grey rocks.

In clear sunlight the physicists climbed back to the top of Mt. Olsen to retrieve the photographic plates. It was an uneventful journey, to be followed by many hours' hard work in the darkroom, where the plates were developed.

At night we noticed a fire glowing from the direction of Saddle Point. We had had no contact with the field men since their departure a fortnight before. We answered with signals from the top of the radio towers, a bonfire on the cliffs of Corinthian Bay and Aldis lamp signals from the radio shack. It was all to no avail. The fire glowed across the three miles' stretch of water. We presumed it was meant to inform us that the party had been unable to reach Spit Bay. They would just have to wait there until picked up by the relief party.

Last-rush souvenir hunters scoured the remains of the

Corinthian Bay settlement for things to take home. The excavators found a stove marked "George Starrett, New York, 1875." There were knives with their owners' initials carved on the handles—"B.J.," "S.G." and "Adam." A piece of a boiling-down pot bore the mark "Colebrookdale."

In base camp the home of the penguin chicks was empty, save for the favourite, "Charlie." Alan Campbell-Drury was hoping to take him home as a pet. But the mood of the moment seemed to have passed from Alan to his pet. Lonely and fretting for the company of the chicks that had been returned to the rookery, "Charlie" stood huddled up, quiet, refusing all food, in the darkest corner of the small hut. No longer did his cheerful cawing welcome Alan; no longer did he follow him round the camp. "Charlie," almost an adult now, had lost most of his baby fur. The black and white marks of the gentoo were appearing above his eyes.

"I'll have to take him back, otherwise he'll die," said Alan.

It was the end of a strange yet close association between man and penguin. Alan took him under his arm and strolled over the hummocks to the rookery.

Alan left "Charlie" in the rookery, amid the fat, fluffy chicks, and turned back for camp. As he glanced backwards he saw "Charlie" cawing pathetically in the air, waddling after him as fast as he could make with his bad foot. The little penguin kept following, forcing Alan to turn once more and pick him up. It was dark when he returned "Charlie" to the rookery for the last time. I think it nearly broke Alan's heart.

By the radio we knew the ship was nearing the island. "We can see Big Ben Peak on our radar screen," the ship reported. Scientists in base worked out mathematical formulae, scratched their heads, then said that we would be able to see the ship's funnel at Spit Bay—if we climbed 500 feet to the top of Corinth Head. The distance was twenty miles, but we'd be able to see the relief ship, they assured us. So a party

climbed up Corinth Head—and saw nothing! Bad visibility out at sea obscured the horizon.

Then, just as we sat down to tea in the rec. hut, our last meal in isolation, the ship's transmitter boomed in at maximum signal strength.

"We're landing supplies at Spit Bay . . . then we're coming straight up to see you!"

The news sent pandemonium throughout the camp. It would only take them two hours to come up the coast from Spit Bay. Two hours only, just two hours, after all the months. Two hours left. The men started rushing around, trying to organise a welcome for the relief ship. Some of them grabbed a signal light and made off for the high cliffs opposite Cape Laurens. Others seized the last of the rockets. All were determined to give the ship a great reception.

I felt excited as I had never been before. Love was never like that! I ran off with the others to take up a position on the cliffs. It was almost dusk, but we were all there waiting. Macey was the first to sight the nose of the ship rounding Rogers Head, a grey bulge above the water. With the signal lamp, Macey flashed out a greeting.

"This is Heard Island, Captain; don't miss us!"

The ship answered in spectacular fashion, shooting off Verey lights and rockets into the sky. We answered with our distress signals; red, green and white rockets were shooting into the air. We cheered and waved until we could cheer and wave no more. All on the cliffs jumped up and ran down. The landing ship, now in full view in the roadstead between Cape Laurens and Rogers Head, was a thing of beauty, an expression of our inner feelings, of our return, of home, of civilisation. Never did a great liner receive such a welcome as this small landing ship!

From the shore Abbottsmith and "Doc" moved out in the dinghy, and swung past Wharf Point to the welcome. Ashore we still shouted and cheered, though we knew no one aboard the relief ship would hear us.

After an interval we could see an amphibian being lowered into the water. Then both dinghy and amphibian headed towards Atlas Cove. We moved round towards the sandy part of the beach, signalling to the driver of the low-lying amphibian. As the strange looking craft drew nearer, we could see heaps of kit-bags, and we could hear the sound of voices. The amphibian crawled out of the water on to the beach, and we recognised the familiar faces of those who had farewelled us so many months before. The men piled off the craft, throwing kit-bags and gear on the sand. We rushed forward shouting. And then I felt a great swelling inside me, an emotion so powerful that I was speechless. I could only nod my head and blindly shake the outstretched hands of the men as they handed round the mail and parcels.

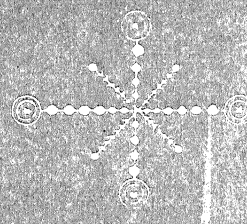
A week later we were on our way. The field men had been picked up at Saddle Point. They had been unable to cross the glaciers because of the summer thaw, and had been patiently waiting for their relief. The survey of the island had to be completed from the bridge of the landing ship, two miles off the west coast. Bearings with the gyro compass and sextant readings to the top of Big Ben enabled the surveyor to finish his map.

Fog was settling over Atlas Cove when the last amphibian returned to the landing ship with my companions and their belongings. Already Johnny Abbottsmith had seen the king penguins safely stowed below in a pen in the tank space.

A stiff NE wind brought a mist, blotting out Cape Laurens. As we cleared the Atlas Roads, the coastline was almost invisible.

But thirty miles away from the island a group of us stood on the stern-deck. Miraculously the fog began to clear, and there appeared the magnificent dome of Big Ben, unconquered, alone in the sky, a white scythe over hugging clouds, peeping in farewell.

Location of Heard Island



Kerguelen Is. ~

Heard Is.

2500 mls. to South Pole

Marion Is.

South
Africa

Australia

Macquarie Is.

Australian Antarctic Territory

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